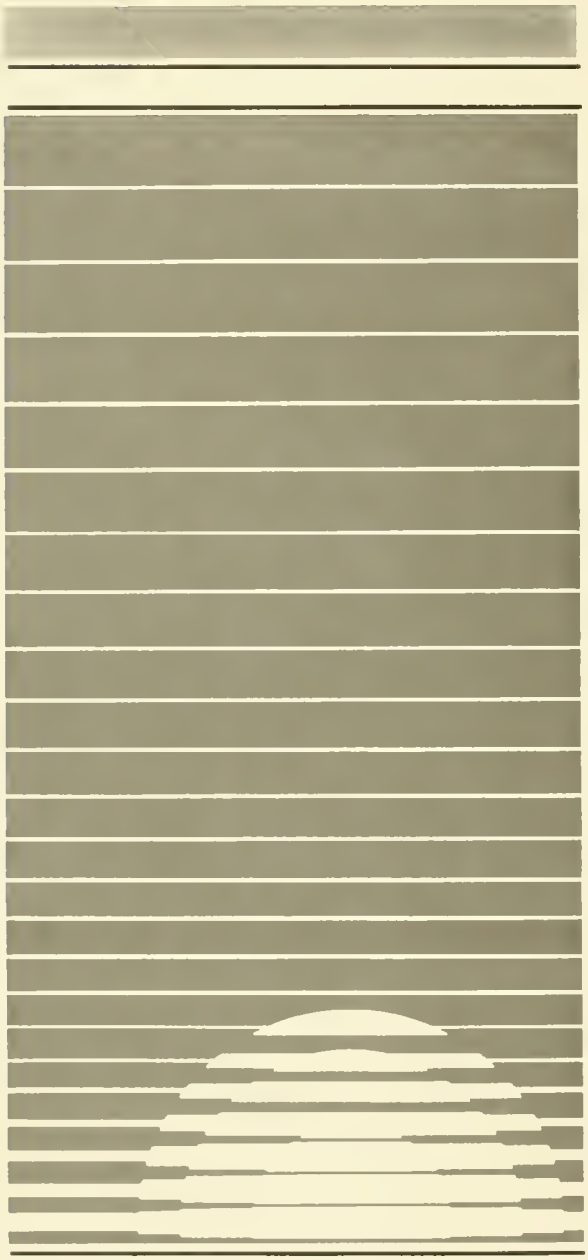
CATALOG 1984-85

CATALOG 1984-85

WACC ARCHIVES

THE WILLIAMSPORT AREA COMMUNITY COLLEGE

The Williamsport Area Community College, A Two-Year, Co-Educational, Publicly-Supported Institution Serving Northcentral Pennsylvania, Fully-Accredited Member of Middle States Association of Colleges and Secondary Schools



The Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701-5799
(717) 326-3761

SPONSOR SCHOOL DISTRICTS

Bradford County
- Canton Area
- Troy Area

Clinton County
- Keystone Central

Columbia County
- Millville

Lycoming County
- East Lycoming
- Jersey Shore Area
- Montgomery Area
- Montoursville Area
- South Williamsport Area
- Williamsport Area

Northumberland County
- Line Mountain
- Warrior Run

Potter County
- Northern Potter

Snyder County
- Selinsgrove
- Midd-West

Sullivan County
- Sullivan County District

Tioga County
- Northern Tioga Area
- Southern Tioga Area
- Wellsboro Area

Union County
- Mifflinburg Area

CATALOG 1984-85

Catalog Issue, Vol 16 Fall 1984, No. 1

TABLE OF CONTENTS

About The College
President's Message 1
Board of Trustees 2
Admission 3
Campus and Facilities 9
Tuition and Fees 9
Financial Aid 12
Degrees and Programs 14
Degrees After Dark 14
Weekend College 14
Associate Degrees 15
Certificates in Special Fields 16
Divisions and Programs 17
Associate of Applied Arts and Sciences And Certificate Programs 19
College and University Transfer Programs 75
Exam Preparation 80
Course Descriptions 81
Educational Services 117
Campus Life 118
Academic Information 120
Developmental Studies 129
Center For Lifelong Education 130
Secondary Vocational Program 131
Commencement Awards 132
Advisory Committees 134
Staff 139
Index of Courses 143
General Index 146
Calendar 148
Campus Map - inside back cover

ABOUT THE COLLEGE

History

1914 – A small industrial arts shop opened at the Williamsport High School.
1920 – A full-time adult day school and an evening school were established.
1941 – The Williamsport Technical Institute was formed, encompassing both the adult and high school programs.
1965 – The Williamsport Area Community College was established by expanding the programming of the Williamsport Technical Institute to include a larger range of community needs.
1981 – The College dedicated three new buildings constructed under Stage I of the building improvement program.
1984 – The College dedicated the new Lifelong Education Center - part of an on-going facilities development program.

Today

The Williamsport Area Community College serves over 24,000 people a year through a diverse range of programs and courses. The College offers:

*Fifty-eight programs leading to associate degrees or certificates in vocational and technical fields and in the liberal arts and sciences.

*Vocational training for secondary students.

*Courses tailored to meet the needs of business and industry for employee training.

*A broad range of avocational courses offered both on-campus and at off-campus sites.

Backed by a tradition of excellence in technical education, the College has gained a national reputation for the diversity and quality of its occupational programs. Of the more than 4000 students a year enrolled in associate degree and certificate programs, about 92 percent are in a technical or occupational area.

The College's programs are housed on five campuses: the central campus in Williamsport, the Earth Science Center in Allenwood/Montgomery, the Aviation Center, adjacent to the Lycoming County Airport in Montoursville, the Danville State Farm Laboratory, and the North Campus, located near Wellsboro. Courses are also offered at locations throughout the College's 20 sponsoring school districts.

In 1984, the College developed five new associate degree and certificate programs and opened a new building – the Lifelong Education Center – on the Central Campus in Williamsport. We also added seven new advanced technology labs designed to bring a new dimension to current programs. Our progress – in programming and campus development – reflects our commitment to meeting the emerging needs of our students and the region we serve.

The provisions of this catalog are not to be considered an irrevocable contract between the student and the College. The Williamsport Area Community College reserves the right to change any fees, requirements and regulations at any time within the student's term of enrollment at the College.

Students are responsible for meeting in full the requirements for graduation set forth by the College. The student's advisor assists in the planning of a program, but the final responsibility for meeting the requirements for graduation rests with the student.

The Williamsport Area Community College does not discriminate on the basis of age, sex, handicap, race, religion, creed, national origin or veteran status. Student inquiries concerning Title VI, IX and Section 504 compliance should be directed to the Title VI, IX and Section 504 Coordinator, Lawrence W. Emery, Jr., Room 157-F, LRC, The Williamsport Area Community College, 1005 West Third Street, Williamsport, PA 17701-5799, (717) 326-3761, ext. 246, or to the Director of the Office of Civil Rights, Department of Education, Office of Civil Rights, Washington, D.C. 20201

PRESIDENT'S MESSAGE

Today, more than ever, education is the key to building a vital and satisfying future—both for individuals and for their communities.

At The Williamsport Area Community College you'll find opportunities to develop your abilities, to build new skills, to acquire the "tools" that can help you build your own future.

Over the past year we have developed new programs, increased our training options in the advanced technologies and opened a new building. You'll find we offer you more opportunities—and more resources—than ever before in our history.

This catalog describes many of these resources—our programs, courses and services. You'll find opportunities to prepare for a variety of careers. And the chance to begin working toward a four-year degree.

Whatever your goal, I invite you to explore our resources and make full use of the opportunities we offer. They're designed to help you meet the challenges—and the opportunities—of tomorrow's world.

Robert L. Breuder
President

BOARD OF TRUSTEES

On behalf of the Board of Trustees, I welcome you to The Williamsport Area Community College. We hope you'll take advantage of the many opportunities for personal growth and professional development available. Being a part of the College is an exciting experience—we invite you to share it.

Mario Caldera
Chairman, Board of Trustees

MARIO CALDERA/CHAIRMAN,
BOARD OF TRUSTEES; South Williamsport

KATHRYN W. LUMLEY/VICE CHAIRMAN,
BOARD OF TRUSTEES; Jersey Shore

EDWARD J. DURRWACHTER/SECRETARY,
BOARD OF TRUSTEES; Williamsport

DR. JOHN H. BONE
Jersey Shore

HARRY B. DIETRICK
Dushore

WESLEY S. DODGE
Williamsport

LOUIS S. EISEMAN
Williamsport

JOAN P. HOWARD
Montgomery

DR. PAUL F. KLENS
Mill Hall

LESTER L. LESSIG
Williamsport

W. JACK LEWIS
Millville

PAUL A. PAULHAMUS
Williamsport

C. WILLIAM SICK
Dushore

QUENTIN S. SNOOK
Mifflinburg

ROBERT E. SWARTZLANDER
Dalmatia

ADMISSION

ADMISSION

Admission Policy

At The Williamsport Area Community College we are committed to serving the educational needs of students from all walks of life. The College operates under an "open-door" admissions policy and is open to anyone with a high school diploma or its equivalent. Anyone age 18 or older who does not have a high school diploma or the equivalent may be admitted as a "special student."

Acceptance to several programs of study is based upon the applicant's meeting the requirements (including necessary academic skills and prerequisites) of the specific program of study. The College reserves the right to deny admission or readmission to any student if, in the opinion of College authorities, his/her admission is not in the best interest of the student or the College.

The Williamsport Area Community College offers equal opportunity for admission without regard to age, race, color, creed, sex, national origin, handicap, or veteran status.

The College will provide opportunities to develop the basic skills necessary to enroll in associate degree and certificate courses to those who demonstrate such needs on the College's placement tests.

Acceptance and Admission Preference

The Williamsport Area Community College will accept students based on the date the applicant's file (i.e., application for admission, application fee, transcripts/GED, and, when appropriate, testing material) is completed in the Admissions Office, with the exception that sponsor district applicants whose files are complete by the dates below will have preference for admission.

The College will grant preference for admission to residents of sponsor districts until February 1 for the fall semester and until October 1 for the spring semester.

Admission Procedure

All graduates of accredited secondary schools in the Commonwealth of Pennsylvania are eligible for admission to the College as regular students. Admission into a specific program is based upon evidence of scholastic readiness for the program.

1. Application and Application Fee

   All applicants to degree and certificate programs must submit an "Application for Admission" form together with a non-refundable application fee. This fee is charged only once. The Director of Admissions, upon written request from a high school counselor or state agency, has the authority to waive the fee when it can be determined that the fee causes financial hardship to an individual.

2. High School Graduation

   a. *High school students* must submit a partial transcript during their senior year. However, a final transcript of high school credits or proof of graduation from an approved or accredited high school with a four-year course of study must be on file before a student can attend classes.

   b. *High school graduates* must submit a final transcript of high school credits or proof of graduation from an approved or accredited high school with a four-year course of study.

   c. *Applicants age 18 or older* may be admitted to the College on the basis of an equivalency diploma, provided that the applicant has earned a minimum General Equivalency Diploma (GED) test score average of 45. Under special circumstances, applicants *17 years of age* may be considered for admission with a minimum GED test score average of 45.

   d. *Anyone age 18 or older* who has not met the requirements of sections a., b., or c. above may be considered for admission into a program as a "special student" provided he/she has the appropriate aptitudes and abilities to enter the College.

   e. *Early Admission:* a student of exceptional ability who has completed the eleventh grade in an accredited high school may enroll at the College as a full-time or part-time student in either a degree or certificate program during what would normally be the senior year of high school. For a student to qualify for early admission, the chief administrative officer of the student's high school must approve and submit the "Admissions Application" together with an official high school transcript, to the College Admissions Office. The Admissions Office will determine whether the student is eligible for the specific degree or certificate program desired. Upon satisfactory completion of the first year in a full-time college program, an early admission student can qualify for a regular high school diploma.

3. Placement Examinations

To insure that applicants have the entry-level skills needed for their programs, all full-time accepted students are required to take the College's placement examinations. The College uses these examinations to assess applicants' skills in math, English and reading. Based on the results of their tests, students will be placed in the appropriate math, English, and reading courses. The College reserves the right to recommend another program or require developmental courses if the test results indicate that an applicant does not have the required academic entry skills.

4. Health Records Requirement

A student who may need special accommodations due to a physical or mental disability/handicap must submit his/her medical history on a health record card. (Health record cards are available from the College's Admissions Office.) The health card should be submitted well in advance of the term in which the student plans to enroll to allow the College to prepare for any special needs. The card must be received before the student can begin classes. A disability or handicap will not be used to deny a person admission to the College.

5. Tuition Deposit and Tuition Payment

All full-time applicants who have been accepted as degree-seeking or certificate-seeking students must submit a $100 tuition deposit. The tuition deposit will be credited to the student's tuition for the first semester. If the student does not enroll and notifies the College by the pre-determined deadline, the College will refund 80 percent of the tuition deposit.

The tuition deposit will hold a space in class until the announced deadline. Students who have not met their total financial obligations for the semester by the deadline will forfeit their class space. As a result someone from the College's waiting list may take their space in the program.

6. Additional Requirements

In addition to the College's general admission policies and requirements, applicants to the Aviation Maintenance Technician, Aviation Technology, Dental Hygiene, Mathematical Computer Science, Surgical Technology, Practical Nursing, Radiologic Technology and Respiratory Therapy programs must also meet the following requirements:

a. All applicants must have graduated from an accredited secondary school or have successfully completed the General Equivalency Diploma Examination (GED).

b. All applicants must successfully complete the College's placement tests. All deficiencies, when identified through testing, must be made up by the designated time.

c. All qualified applicants (except for applicants to the aviation programs) must discuss their career choice and their expectations of the program during an interview. A hospital observation is required for applicants to Radiologic Technology and Respiratory Therapy.

d. Practical Nursing and Respiratory Therapy applicants must take additional standardized tests. Dental Hygiene applicants are required to take the S.A.T. tests. Test results will be used by the College in determining final acceptance to these programs.

e. Application, testing, and interviews for the Respiratory Therapy program must be completed by March 1.

f. Dental Hygiene students must complete the required physical examination forms prior to the first day of classes. Accepted Dental Hygiene students must be in good health to begin classes.

ADMISSION

Admission of International Students

The Williamsport Area Community College believes that the presence of international students on campus will enrich the educational environment for all students. The College is authorized under Federal law to enroll non-immigrant alien students on "F-I" student visas. An "Application for Admission" and all supporting documents must be received in the Admissions Office at least two weeks prior to the day of late registration for the term in which the student plans to enroll.

All transcripts, test scores, and other credentials become the property of the College and will not be returned or transferred to another institution.

In addition to the College's general admission requirements, international students must fulfill the following requirements:

1. All international students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL).

2. Applicants must submit an affidavit of support for themselves and for all members of their family who will accompany them to Williamsport. The affidavit certifies that the applicant has adequate funds to attend college and will not become a public charge. Failure to provide this information may result in the denial of the applicant's application for an "F-I" student visa.

3. All international students who are accepted must take the College's placement tests. Placement into the appropriate level of courses will be determined by the tests. International students must arrange to be on campus approximately one week prior to registration for the term in which they are enrolling. Failure to complete placement tests may result in denial of acceptance into programs.

4. International students must become familiar with the regulations of the Immigration and Naturalization Service and assume responsibility for complying with test regulations.

Reenrollment

Former students who wish to reenroll must apply for readmission through the Admissions Office. They do not have to submit an application fee. They may be required to submit a health records card. (See Health Records Requirement on page 5.)

1. A student who:

   a. reenrolls in the same program in which he/she was last enrolled, and
   b. reenrolls less than two years after he/she last attended the College,

   is required to meet graduation requirements in effect at the time the student was originally enrolled.

2. A student who:

   a. reenrolls in the same program in which he/she was last enrolled, and
   b. reenrolls two or more years after he/she last attended the College,

   must meet current graduation requirements. All course work previously completed will be reviewed on a course by course basis to determine whether it meets current graduation requirements. All courses completed will remain on the student's transcript. Only credits for courses which meet the current program requirements will be used in calculating the student's cumulative grade point average.

3. If a student reenrolls in a program different from the one in which he/she was last enrolled, each course previously taken will be evaluated to determine whether it meets the requirements of the new program. Only credits for courses which meet the requirements of the current program will be used in calculating the student's cumulative grade point average. However, all courses completed will remain on the student's transcript. Students reenrolling in a new program are required to meet the graduation requirements for the new program in effect at the time they reenroll.

   Special circumstances may be appealed to the Dean of Academic Affairs or his/her designee, who may waive the conditions given above.

Change of Program

A change of program may be made at the beginning of any semester. Currently enrolled students who wish to change from one program of study to another must follow the steps below:

1. Complete an "Admissions Application" and submit it to the Admissions Office. Acceptance into the new program will be based on sponsorship status and on the date the applicant's file is complete in the Admissions Office.

2. Complete a "Student Status Change" form; obtain all required signatures (advisor, counseling, division director, admissions). Submit the form to the Student Records Office.

When a student changes his/her program, all credits earned in the prior program will be evaluated for transfer to the new program. All prior course work will appear on the student's transcript. Only courses applicable to the new program will be used to calculate the student's new cumulative grade point average.

Transfer Students

Students from other colleges who wish to transfer to The Williamsport Area Community College must follow the procedure below:

1. Complete steps listed under Admission Procedure, (see page 4) with the exception of "High School Graduation."

2. Ask all college(s) previously attended to send an official transcript to The Williamsport Area Community College Admissions Office. The College may also request a high school transcript.

3. Provide course descriptions or a college catalog to the Admissions Office for use in evaluating courses completed at another institution.

Transfer Credit

Transfer credit includes: credit for courses earned at another institution, college credit earned before high school graduation, service credit, United States Armed Forces Institute (USAFI) credit, and credit earned through the College Level Examination Program (CLEP).

A maximum of 30 transfer credits may be applied toward a degree or certificate. Courses to be considered for transfer must have been completed with a grade of "C" or better. However, if a student earns a cumulative "C" average or better in sequential courses (for example, English 1 and English 2) an exception may be made based on the evaluation of the courses. Courses taken more than two years before the student enrolls at The Williamsport Area Community College may be evaluated (on a course-by-course basis) to determine if they are equivalent to courses currently required in the student's program. A copy of the evaluation of transfer credit will be sent to the student.

All transfer credit will appear on the student's transcript after the student successfully completes one semester of academic work at The Williamsport Area Community College. Transfer credit will appear on the transcript with credit value only. Transfer students will enroll without any cumulative grade point average. A student must be enrolled in courses at The Williamsport Area Community College for at least the last 12 credit hours of his/her program. Requirements for the evaluation of different forms of transfer credit are listed below.

1. Transfer from Another Institution

   All credits earned at a previously attended institution(s) will be evaluated for transfer credit. The student must send The Williamsport Area Community College Admissions Office an official catalog description of each course to be evaluated and a description of the grading codes (if the grade codes are not defined on the transcript) from each institution from which courses are to be evaluated. These materials must consist of either of the following: the institution's catalog or a photocopy of the course descriptions and the grade codes description taken from the institution's catalog.

2. College Credit Earned Before High School Graduation

   College credit earned before high school graduation will be evaluated only if the college where the work was taken issues an official college transcript. Students who have earned college credit before graduation from high school must follow the procedure defined under "Transfer from Another Institution."

3. Service Credit

Veterans who have served 12 consecutive months of active military duty will be granted credit for health and/or physical education (if required in their program). The student must submit a copy of his/her report of separation (DD-214) and complete a waiver for physical education with the Health Sciences Office.

4. United States Armed Forces Institute Credit (USAFI)

The College may grant credit for USAFI credit. An official transcript must be mailed directly from USAFI in Madison, Wisconsin to the College's Admissions Office. Credit will be granted for those courses which are substantially comparable to courses offered at The Williamsport Area Community College. If the student's program includes electives, elective credit will be granted for those courses which are not comparable.

5. College Level Examination Program (CLEP)

The College will examine CLEP results and may grant college credit to individuals who score at least in the fiftieth percentile rank on the CLEP exam. The student must provide an official copy of his/her CLEP scores to the College's Admissions Office. The College will determine whether credit earned through CLEP will be issued for required credit courses or as elective credit.

Non-Degree Students

A student who does not wish to pursue a degree or certificate program is a non-degree student. Such students are permitted to select courses without regard to degree or certificate requirements. If at a later date, a non-degree student desires to enroll in a specific degree or certificate program, an application for admission to the program, together with any other required credentials, must be submitted to the Admissions Office.

Non-degree students are not eligible for financial aid. They are permitted to schedule classes on a first-come/first-served basis (after currently enrolled students have been given the opportunity to schedule classes). Non-degree students must complete an "Admissions Application" form the first time they schedule credit classes, but are not required to pay the application fee.

Transfer Of Credits To Four-Year Institutions

The Williamsport Area Community College has established formal agreements with Lock Haven and Mansfield Universities allowing, under certain conditions, the transfer of associate degree graduates into these institutions with junior-level status.

The College is also negotiating formal agreements with the following colleges and universities:

Bloomsburg University
Kutztown University
Wilkes College
Rochester Institute of Technology

If you would like detailed information about the transferability of specific courses or programs, please consult your division director.

Housing

Students are responsible for making their own housing arrangements. The Admissions Office, Academic Center, Room 104, maintains a list of area housing facilities for men and women. Prospective students are urged to make arrangements for housing as soon as possible after being admitted. A booklet containing guidelines on obtaining housing is available. The College does not sponsor, approve, disapprove, evaluate or supervise the listed facilities. Any agreement for renting is solely between the landlord and student.

Health Services

Student Health Services is staffed by a registered nurse and is open Monday through Friday from 8 a.m. to 3:30 p.m. during the fall and spring semesters. First aid, health counseling, and assistance in obtaining private health care and student insurance is available. Costs for private health care are the student's responsibility. Student Health Services is located on the first floor of the Gymnasium, Room 104.

Student Retention Data

Persons interested in obtaining data on student retention (number of students who enroll at the College and number who actually complete their program) should contact the Registrar/Director of Institutional Research, Academic Center, Room 110.

CAMPUS AND FACILITIES

In addition to its Central Campus in Williamsport, the College offers credit programs at the following locations:

Aviation Center - Adjacent to Williamsport/Lycoming County Airport in Montoursville

- Aviation Maintenance Technician
- Aviation Technology

Danville State Farm Laboratory - South of Danville on Route 11, North

- Agribusiness
- Dairy Herd Management

Earth Science Center - South of Williamsport on Route 15

- Agribusiness
- Dairy Herd Management
- Floriculture
- Forest Technology
- Nursery Management
- Outdoor Power Equipment
- Service and Operation of Heavy Construction Equipment
- Wood Products Technology

North Campus

The North Campus of The Williamsport Area Community College is located on Route 6 between Wellsboro and Mansfield. Students may enroll in degree programs in Accounting, Business Management, Computer Information Systems and Secretarial Science, or in the certificate program in Practical Nursing. Students may also participate in the Cooperative Education program.

The North Campus offers a flexible schedule of day and evening courses throughout the year. Students, including those enrolled in programs on the College's Williamsport Campus and non-degree students, may enroll in individual courses at the North Campus.

The North Campus also offers secondary programming in Health Occupations and Computer Information Systems. A variety of non-credit courses are held throughout the year.

Students applying for admission to programs offered at the North Campus must follow the College's Admission Procedures (see page 4). The policies, procedures, tuition and programs for students enrolled at the North Campus are the same as those for students at the central campus in Williamsport.

Anyone interested in more information on the North Campus should contact the North Campus/ RD 3, Box 346/ Wellsboro, PA 16901/ (717) 724-7703.

For additional information on the College's facilities, including access for the handicapped, contact the Office of Admissions, Academic Center, Room 104.

TUITION AND FEES

TUITION AND FEES

Full-Time Students

State regulations define a full-time student as anyone enrolled for 12 or more credit-hours per semester. However, tuition and related fees are based solely on the number of credits for which you are enrolled, as described below.

Application Fee

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $15 application fee with their "Admission Application." You are required to pay this non-refundable fee only once.

Tuition Deposit

All applicants who have been accepted as full-time degree or certificate students must pay a $100 tuition deposit to hold a class reservation in the first semester for which they have applied.

If you enroll at the designated time, the deposit will be credited to your tuition for the first semester. If you do not enroll and notify the College by the pre-determined deadline, the College will refund 80 percent of the tuition deposit.

TUITION AND FEES

Tuition and Related Fees—1984-85*

Tuition and related fees are governed by your area of residence and are based on a per credit hour charge. To calculate your tuition and fees for one semester, multiply the number of credits for which you are enrolled by the total per credit charge under the appropriate residence category. The four categories of residence and the tuition and fees for each are:

1. **School District Sponsoring The Williamsport Area Community College**

   A sponsor school district is one which contributes to the financial support of the College. At present, 20 school districts sponsor the College. If you reside in a school district which sponsors The Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship in order to be eligible for sponsoring school district tuition rates. The form should be mailed to the Bursar's Office after you have been accepted and as soon as possible prior to registration. (Sponsor school districts are listed in the front of this catalog).

	PER CREDIT HOUR CHARGE
Tuition	$35.90
Service Fee	none
Activity Fee	$ 1.25
TOTAL	$37.15

2. **Pennsylvania School District Sponsoring Another Community College**

   If you reside in a school district which sponsors another Pennsylvania community college, you must obtain permission, IN WRITING, from the Board of Trustees of the other community college in order to qualify for sponsoring school district tuition and fees. If you do not obtain permission, you will be charged the same tuition and fees as non-sponsor students.

	PER CREDIT HOUR CHARGE
Tuition	$35.90
Service Fee	$ 8.65
Activity Fee	$ 1.25
TOTAL	$45.80

3. **Non-Sponsoring Pennsylvenia School District**

   If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania community college, you will pay the following tuition and fees:

	PER CREDIT HOUR CHARGE
Tuition	$73.95
Service Fee	$ 8.65
Activity Fee	$ 1.25
TOTAL	$83.85

4. **Out-of-State Resident**

   Out-of-state students will pay the following tuition and fees:

	PER CREDIT HOUR CHARGE
Tuition	$105.90
Service Fee	$ 17.25
Activity Fee	$ 1.25
TOTAL	$124.40

*Tuition and Fees are subject to change without notice.

Deferred Payment

The College shall not knowingly accept a partial payment from any student except as required for tuition deposits, financial aid plans, or within the guidelines established by the Board of Trustees' policy for deferred fee status (given below).

Any student whose fee is in arrears after the first day of classes shall be subject to a $20 deferred processing fee.

Students who are unable to pay tuition and fees in full by the due date, may make a partial payment as determined by the College and pay the remaining portion in two equal installments at 30-day intervals following the beginning of the semester. A $20 processing fee will be charged for this installment plan. Nullification or adjustment of financial aid awards shall not alter the student's obligation to complete installment payments to the College.

Students who fail to meet their financial obligations under this plan shall be administratively withdrawn. Such termination will not cancel the student's financial obligation to the College. Students participating in an installment plan will have their grades and transcripts held until their accounts are settled.

Books and Supplies

Expenses for books and supplies will vary considerably from program to program. The College tries to keep expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost for books and supplies can be as high as $150 per semester.

Tools

When you have been accepted in a particular program, the Admissions Office will provide you with a list of required tools. We recommend that you do not buy any tools or protective clothing for any course before attending the first class. Tool costs vary greatly, depending on your program. Prospective students should contact the Admissions Office for a list of estimated tool costs for each program. The tools will be your personal property. In many cases, students will use these tools throughout their careers.

Transcripts

The student's grade report is an unofficial transcript (identical to the official transcript but without the official seal) which shows all course work completed by the student. Students may use their grade report when an unofficial transcript is needed. Official transcripts are only those transcripts sent to another institution, agency, or employer.

Students will be charged $1.00 for each additional transcript. All requests for additional transcripts must be submitted in writing to the Student Records Office. The request must contain the following information: the student's name while attending The Williamsport Area Community College, the student's address and social security number, the dates of enrollment, the name of the program(s) in which the student was enrolled, and a complete address to which the transcript is to be sent. If the transcript is sent to the student or to his/her address, it is considered an unofficial copy.

Graduation Fees

Any students who wish to receive an engraved diploma or certificate when they graduate must pay a $5.00 fee when they petition to graduate. If a student orders a diploma or certificate after the advertised date for ordering a diploma (i.e., two months prior to the date of graduation), the student must pay a special processing fee of $10.00.

If a graduating student does not wish to receive an engraved certificate or diploma, he/she will not be charged the graduation fee but must still file a petition. (See Petition to Graduate on page 126.)

Withdrawals and Refunds

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application fees, service fees, activity fees, and tuition deposits (except as described under Tuition Deposit) are not refundable. A "Request for Refund" form can be obtained from the Student Records Office. In order to obtain a refund the "Request for Refund" form and the necessary withdrawal forms (i.e., "Student Status Change Form") must be submitted at the same time. (See page 127 for withdrawal procedures.)

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

Prior to the first day of classes	100% Refund
First week of classes	80% Refund
Second week of classes	70% Refund
Third week of classes	60% Refund
After third week of classes	No Refund

Refunds will be made according to the following schedule for the summer semesters:

Prior to the first day of classes	100% Refund
7% of total instructional hours	80% Refund
13% of total instructional hours	70% Refund
20% of total instructional hours	60% Refund
After 20% of total instructional hours	No Refund

FINANCIAL AID

Recognizing that the cost of education is often greater than the student and his/her family can afford without help, the Financial Aid Office helps students obtain financial assistance through a variety of aid programs:

Grants
Scholarships
Loans
College Work-Study Program
Veteran's Benefits
Vocational Rehabilitation Sponsorship
Part-Time Employment

Every student is encouraged to thoroughly explore each of the above programs, and to contact the Financial Aid Office for assistance in obtaining and completing applications for aid.

Employment

Students interested in part-time employment other than the College Work-Study program should contact Counseling, Career Development and Placement for further information.

Special Attention

Deadlines

Students who want the fullest consideration for all awards should have all needed application materials complete and on file in the Financial Aid Office as soon as possible. For the 1985-86 year, for example, completed applications for some forms of aid should be on file by March 1, 1985. Applications received after this date will be processed and students filing late will be considered for aid, but only after other applications received by the deadline have been reviewed and awards made.

An exception to the above deadline is made for the Guaranteed Student Loan Program. Loan applications may be submitted at any time during the year, but should be filed early enough to allow for the six to eight week processing time prior to loan approval and release of funds to the applicant.

Need Analysis Forms

To determine a student's financial eligibility for awards, especially Supplemental Grants and College Work-Study awards, a review of the family financial situation must be completed.

The College uses the Pennsylvania Higher Education Assistance Agency system for need analysis purposes. These forms can be obtained from the College's Financial Aid Office, high schools and the state agency.

Policy on Satisfactory Academic Progress

This policy applies to all students receiving financial aid from federal or state student assistance programs:

Federal Programs (Pell/SEOG/College Work Study/Guaranteed Student Loan/Plus Loan):

A full-time student who receives aid from the Pell, SEOG, or College Work Study programs must make satisfactory academic progress in order to continue to be eligible for aid. Students shall be considered to be making satisfactory progress if, based on academic achievement, the College allows them to continue their enrollment, provided that they successfully complete at least 24 credits by the end of the first academic year.

Students whose cumulative grade point average falls below 2.00 will be placed on academic probation, and a decision on their continued enrollment will be made by the Probation Committee. Students on academic probation may continue to receive financial aid, provided they successfully complete at least 24 credits by the end of the first academic year.

After receiving aid for the fourth semester of a two-year program or the second semester of a one-year program the student will not be eligible for additional aid until after graduation from the program. In addition, any student who changes programs two or more times will be determined ineligible pending further review.

Any part-time student who receives aid and who fails, withdraws from, or receives an incomplete in two or more courses in which he/she was enrolled during an academic year (or the equivalent) shall be ineligible for further aid until he/she completes courses equivalent in credits to the number which were not successfully completed.

Credits earned through advanced placement or life experience and external transfer credits may be used to meet graduation requirements, but may not be included in the number needed for satisfactory progress for financial aid purposes.

Students determined to be ineligible for additional aid may appeal this determination by writing to the Director of Financial Aid or his/her designee, stating the basis for appeal. Exceptions may be made based on extenuating circumstances including, but not limited to, documented illness, change of program, or the required completion of Developmental Studies courses. The Director or designee will inform the student in writing of the decision, specifying the duration of time or other conditions under which an exception has been made, or explaining the reason for denying the appeal and detailing the actions necessary for the student to regain eligibility. A student may request a review of the decision in a meeting of the student, Director of Financial Aid and the Associate Dean of Educational Services.

State Program (PHEAA):

PHEAA regulations require that for each year of a PHEAA grant, a student must successfully complete 24 credits, otherwise the student will be ineligible to receive additional grants. Appeals must be made directly to PHEAA. This policy is subject to revision by PHEAA.

Amnesty (For Federal Programs)

For returning students who have not been enrolled during the past five years, prior academic performance will not be considered when satisfactory academic progress is measured.

NOTE:

SEOG = Supplemental Educational Opportunity Grant
CWS = College Work-Study Program
PHEAA = Pennsylvania Higher Education Assistance Agency
GSL = Guaranteed Student Loan
PLUS = Parents Loan for Undergraduate Students

Veterans Information/Benefits

The College has been approved for the education and training of veterans. The Financial Aid Office provides counseling and assistance to veterans. All veterans must register in the Financial Aid Office in order to collect G.I. benefits or to initiate action concerning the Veterans' Administration. Veterans should bring a copy of their DD 214 and, when applicable, their marriage certificate

and children's birth certificates, to the Financial Aid Office for their first interview. The Financial Aid Office maintains a complete supply of forms for such purposes.

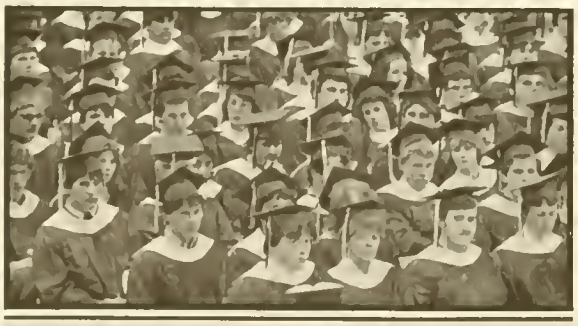
The College does not handle advance payment requests.

Additional Information and Assistance with Applications

Additional information about all of the financial aid programs listed above is available from the Financial Aid Office at the address below. We advise you to request a copy of the College's Financial Aid Brochure, which provides more information about all of these programs. For information and applications, call, write, or visit:

Financial Aid Office
The Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 241

DEGREES AND PROGRAMS



DEGREES AFTER DARK

Degrees After Dark offers employed students and those with other daytime responsibilities the opportunity to earn a degree by attending classes in the late afternoon and evening. Programs currently offered through Degrees After Dark (as well as during the day) include:

Accounting
Air Conditioning/Refrigeration
Automotive Mechanics
Automotive Technology
Business Management
Computer Information Systems
Electronic Technology
Retail Management
Secretarial Science
Welding
Word Processing
General Studies
Individual Studies

For more information on Degrees After Dark, contact the Office of Admissions (717) 322-0149.

WEEKEND COLLEGE

The Business and Computer Technologies Division is pioneering a concept which allows students to complete associate degree courses on the weekends. Beginning with the fall 1984 semester, a variety of classes in computer science, accounting and business management will be offered. Scheduling options include:

Option A - Short sessions which meet three hours a week on Saturday mornings for 16 weeks.

Option B - Concentrated study periods with each course meeting on Friday evenings, on Saturdays and on Sunday mornings for four consecutive weekends.

Option C - Each course meets every third weekend for 12 hours on Fridays, on Saturdays and on Sunday mornings. Under this option, classes meet only four weekends.

Option D - Each course meets eight hours a weekend for six weekends. Under this option students can take two classes at the same time.

For more information on Weekend College, contact the College's Business and Computer Technologies Division (717) 326-3761, ext. 225.

ASSOCIATE DEGREES

The Williamsport Area Community College awards three types of associate degrees. Associate degree programs can help you prepare for employment or serve as the basis for additional education. Associate degree programs require a minimum of 60 credits.

The Associate of Applied Arts (AAA) is offered in Advertising Art, Broadcasting and Journalism. These programs offer students the opportunity to gain the technical and professional skills needed for employment and to prepare for transfer to a four-year college.

The Associate of Applied Science (AAS) degree programs offer students the opportunity to gain the technical and occupational skills needed for employment. These programs also prepare students for transfer to four-year colleges.

The Associate of Arts (AA) degree programs are designed to parallel the first two years of a liberal arts education at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree.

Associate of Applied Arts

The Associate of Applied Arts programs offer knowledge and skills in programs emphasizing communications. Each program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Arts (AAA) degrees in the following areas:

Integrated Studies
- Advertising Art
- Broadcasting
- Journalism

Associate of Applied Science

If you want to gain knowledge and skills in a technical or occupational area, you can earn an Associate of Applied Science degree. Each program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Science (AAS) degrees in the following areas:

Business and Computer Technologies
- Accounting
- Business Management
- Computer Information Systems
- Retail Management
- Secretarial Science
  - Executive
  - Legal
  - Medical
- Word Processing

Construction Technology
- Air Conditioning/Refrigeration
- Architectural Technology
- Carpentry & Building Construction Technology
- Electrical Technology

Health Sciences
- Dental Hygiene
- Dietetic Technician
- Food & Hospitality Management
- Radiologic Technology

Industrial Technology
- Civil Engineering Technology
- Electronics Technology
- Engineering Drafting Technology
- Machine Tool Technology
- Tool Design Technology

Integrated Studies
- Graphic Arts
- Human Service
- Mathematical Computer Science
- Technical Illustration
- Technology Studies

Natural Resources Management
- Agribusiness
- Floriculture
- Forest Technology
- Nursery Management
- Wood Products Technology

Transportation Technology
- Automotive Technology
- Aviation Technology
- Diesel Technology

Associate of Arts
(College and University Transfer)

The General Studies and Individual Studies Programs

The Williamsport Area Community College offers an Associate of Arts (AA) degree in both the General Studies Program and the Individual Studies Program. Both programs are designed to provide the student with the opportunity to:

1. Participate in a planned educational program of studies leading to an Associate Degree.

2. Elect, from a broad range of courses, those courses most appropriate to individual academic and career goals.

3. Interact on a regular basis with the College staff and fellow students in the cultural, social, and recreational activities that lead to intellectual growth and emotional maturity.

4. Demonstrate a mastery of basic mathematic concepts and skills.

5. Display in written and verbal presentations the ability to communicate clearly, correctly, and convincingly.

The General Studies Program is designed primarily for transfer to four-year college degree programs. (For additional information on transfer, see Transfer of Credits to Four-year Institutions on page 8.) It provides the opportunity to begin academic course work leading to many professional careers. Specific curriculum guides have been developed in the following career areas:

Business Administration
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis

The Individual Studies program offers students the maximum flexibility in designing an associate degree program to meet his or her needs. The Individual Studies program also offers students waiting for an opening in a particular career-oriented program the opportunity to begin work leading to a degree.

CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and heavily skills oriented. They are not primarily designed for transfer but in certain cases can be transferred to some colleges. Certificate programs vary in length, but do not exceed two years of course work.

A feature of these Certificate in Special Field of Study programs is the optional elective. As the name implies, an optional elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

Certificates are offered in the following areas:

Business and Computer Technologies
Clerical Studies
Computer Operator

Construction Technology
Air Conditioning/Refrigeration
Construction Carpentry
Electrical Occupations
Plumbing and Heating

Health Sciences
Practical Nursing
Quantity Food Production & Service
Respiratory Therapy Technician
Surgical Technology

Industrial Technology
Industrial Drafting
Machinist General
Welding

Integrated Studies
Printing

Natural Resources Management
Dairy Herd Management
Outdoor Power Equipment
Service & Operation of Heavy Construction Equipment

Transportation Technology
Auto Body Repair
Automotive Mechanics
Aviation Maintenance Technician
Diesel Mechanics

DIVISIONS AND PROGRAMS

BUSINESS & COMPUTER TECHNOLOGIES
Division Director, Dr. Donald B. Bergerstock
Assistant Director, Thomas C. Leitzel

- Accounting (BA)
- Business Management (BM)
- Clerical Studies (BT)
- Computer Information Systems (CS)
- Computer Operator (CO)
- Retail Management (RM)
- Secretarial Science (BS):
  - Executive
  - Legal
  - Medical
- Word Processing (WP)
- **College & University Transfer Program**
  - Business Administration
- **Exam Preparation**
  - Real Estate

CONSTRUCTION TECHNOLOGY
Division Director, Dr. Ralph Horne

- Air Conditioning/Refrigeration (RA/RC)
- Architectural Technology (AT)
- Carpentry & Building Construction Technology (CB)
- Construction Carpentry (CC)
- Electrical Occupations (EO)
- Electrical Technology (EL)
- Plumbing and Heating (PL)

HEALTH SCIENCES
Division Director (Vacant)

- Dental Hygiene (DH)
- Dietetic Technician (DT)
- Food & Hospitality Management (FH)
- Practical Nursing (NU)
- Quantity Food Production & Service (QF)
- Radiologic Technology (RT)
- Respiratory Therapy Technician (HC)
- Surgical Technology (ST)
- **Service Courses**
  - Medical Terminology
  - Physical Education & Health

INDUSTRIAL TECHNOLOGY
Division Director, Dr. George A. Baker

- Civil Engineering Technology (CT)
- Electronics Technology (ET)
- Engineering Drafting Technology (ED)
- Industrial Drafting (MD)
- Machine Tool Technology (TT)
- Machinist General (MG)
- Tool Design Technology (TD)
- Welding (WE)

INTEGRATED STUDIES
Division Director, Dr. James E. Middleton

- Advertising Art (AR)
- Broadcasting (BR)
- Graphic Arts (GA)
- Human Service (HS)
- Journalism (JO)
- Mathematical Computer Science (MC)
- Printing (GP)
- Technical Illustration (TI)
- Technology Studies (TS)
- **Service Courses**
  - Advertising
  - Biology
  - Chemistry
  - Economics
  - Education
  - English
  - Environmental Science
  - Geography
  - Geology
  - German
  - Government
  - History
  - Mathematics
  - Philosophy
  - Physics
  - Psychology
  - Sociology
  - Spanish

DEGREES AND PROGRAMS

NATURAL RESOURCES MANAGEMENT
Division Director (Acting), Glenn Spoerke

Agribusiness (AG)
Dairy Herd Management (DY)
Floriculture (FL)
Forest Technology (FR)
Nursery Management (NM)
Outdoor Power Equipment (SM)
Service & Operation of Heavy Construction Equipment (SO)
Wood Products Technology (WD)

TRANSPORTATION TECHNOLOGY
Division Director, William H. Debolt

Auto Body Repair (AB)
Automotive Mechanics (AM)
Automotive Technology (AU)
Aviation Maintenance Technician (AC)
Aviation Technology (AD)
Diesel Mechanics (DM)
Diesel Technology (DD)

COLLEGE & UNIVERSITY TRANSFER PROGRAMS
Dr. James E. Middleton

General Studies
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis

Individual Studies

CENTER FOR LIFELONG EDUCATION
Director, Barbara A. Danko

Non-Credit Courses & Programs
Specialized Business & Industrial Programs

Exam Preparation
Engineer In Training

COOPERATIVE EDUCATION (CED)
Director of Experiential Learning, William C. Bradshaw

Courses in conjunction with Divisions and Programs

DEVELOPMENTAL STUDIES
Director, R. Dean Foster

COPing Program
Developmental Studies Courses

SECONDARY VOCATIONAL PROGRAMS
Director, Dr. William J. Martin

Auto Body Repair
Automotive Mechanics
Aviation Maintenance Technician
Carpentry
Cooperative Education (CAPSTONE)
Cosmetology
Drafting - Architectural/Mechanical
Electrical Construction
Electronics
Forestry
Health Assistant
Horticulture
Machine Shop
Masonry
Quantity Food Production and Service
Small Engine Repair
Welding

ACCOUNTING (BA)

Associate Degree/2 years

This program offers a broad business background with a specialization in accounting. It begins on the elementary levels of accounting and business and advances to more complex levels.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

FIRST SEMESTER

			Credits
ACC	112	Accounting I*	3
MGT	110	Principles of Business*	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	122	Accounting II	3
ACC	125	Income Tax Accounting	3
CSC	118	Fundamentals of Computer Science*	3
MGT	230	Business Communications	3
PED		Physical Education	1
		Elective-Social Science/Humanities	3
			16

THIRD SEMESTER

			Credits
ACC	231	Cost Accounting	3
ACC	232	Intermediate Accounting I	3
MGT	231	Business Law I*	3
		Elective-Computer Science*	3
		Elective*	3
			15

FOURTH SEMESTER

			Credits
ACC	244	Intermediate Accounting II	3
MGT	241	Business Law II	3
ECO	201	Principles of Economics*	3
ENL	202	Fundamentals of Speech	3
		Elective*	3
			15

*Equivalent AIB (American Institute of Banking) courses may be substituted with Division Approval.

Co-op Options:
Parallel
Summer

EVENING PROGRAM

Courses required for the associate degree in Accounting are also offered in the evenings and on weekends for the convenience of students who are unable to attend weekday classes. Students may complete all courses required for a degree in Accounting by enrolling in evening and weekend courses on a part-time basis. Part-time students may require more than two years to complete the program.

PROGRAM OBJECTIVES

The general objective of the Accounting program is to prepare the student for employment in the accounting field – public, private, and government. As an alternative, graduates may pursue advanced degrees. The program will also upgrade the skills of those now employed in this field.

The graduate should be able to:

1. identify and apply generally accepted accounting principles.
2. organize, prepare, and interpret financial data and statements.
3. demonstrate skill in effective verbal and written communication.
4. use and interpret federal and state income tax laws applicable to the individual and sole proprietor.
5. identify, use and interpret cost accounting information.
6. identify the laws which affect business.
7. apply computer knowledge and techniques in the preparation and analysis of financial statements and data.
8. apply human relations skills in the business environment.
9. apply general knowledge of the social sciences and understand their effect on our society.
10. identify the need for physical fitness and positive leisure activities.

ADVERTISING ART (AR)

Associate Degree/2 years

This program prepares students for employment in advertising art and related fields. Students develop skills in drawing, painting, designing, illustrating, coloring, paste-up, rendering, composing, layout, lettering, sketching, and proper use of tools, equipment, and materials. Related courses in journalism, photography, graphic arts, and courses in English, mathematics, and history increase the student's career opportunities. Some prior training in art is desirable.

Types of Jobs: Advertising artist, art director, layout artist, renderer, letterer, illustrator; mechanical work, general board work.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ART	111	Basic Drawing	3
EDT	101	Mechanical Drawing	2
GCO	515	Layout and Design	3
JOU	114	Mass Media Photography	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
ART	231	Color and Design	3
GCO	525	Process Camera	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	3
PED		Physical Education	1
		Elective-Humanities/Social Sciences	3
			16

THIRD SEMESTER

			Credits
ART	121	Basic Painting	3
ART	232	Lettering and Layout	3
ART	233	Introduction to Art	3
GCO	516	Typographic Composition	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
ART	242	Advertising Design	3
ADV	101	Principles of Advertising	3
GCO	526	Film Assembly and Imposition	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the program is to prepare students for jobs in the advertising art field or for transfer to a baccalaureate degree program.

A graduate of the Advertising Art program should be able to:

1. demonstrate manipulative skills — including dexterity with pen, brush and ink, litho pencil, carbon pencil, pastel, airbrush, art aids, and water base pigments.
2. create product renderings (drawing or paintings) in the following mediums: watercolor, designers colors, retouch grays, wash, pen and ink, scratchboard, litho pencil, carbon pencil, airbrush, benday screens, and other art techniques used in preparing mechanicals (finished copies used in printing).
3. draw and sketch product and spot illustrations, the figure, and objects from nature.
4. demonstrate skills in color and design as applied to such variables as mass, color elements, shape, space, movement, time, and organization.
5. use lettering and layout skills, such as outline lettering, old style, modern and sans serif, free hand lettering, italic, brush and comp lettering; indicate type styles and sizes for printers.
6. lay out visual material for reproduction or presentation.
7. demonstrate desirable attitudes and work habits — creative thinking, the ability to solve problems, good artistic judgement, industriousness, cooperation, responsibility, self-reliance — and an appreciation for and understanding of past civilizations.
8. demonstrate knowledge of printing and publishing, verbal and written communications, and advertising.
9. understand and respect the employer-employee relationship, and appreciate the need to produce high quality work.
10. demonstrate knowledge of the relationship between various production departments (for example typesetting, the art department, camera, etc.) and the contributions each makes to the total product or service.
11. communicate clearly, both verbally and in writing.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate sufficient understanding of advertising art for entry-level employment and advancement in the field.

AGRIBUSINESS (AG)

Associate Degree/2 years

The Agribusiness program prepares men and women for mid-management positions in an agricultural business and for work in production agriculture as farm owners or supervisors.

Types of Jobs: Farm operator or manager; farm supply and garden center; feed, seed, and fertilizer sales; farm credit, financing, and insurance.

*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
AGB	111	Introduction to Agricultural Business	4
AGB	112	Soils, Fertilizer, and Agricultural Chemicals	4
MGT	110	Principles of Business	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
AGB	123	Field & Forage Crop Production	3
AGB	124	Agricultural Financing	3
AGB	125	Dairy Production	3
MGT	111	Business Mathematics	3
MGT	230	Business Communications	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
AGB	236	Animal Production	4
AGB	237	Special Topics in Agribusiness	3
ACC	112	Accounting I	3
ENL	202	Fundamentals of Speech	3
		Elective-General*	3
			16

FOURTH SEMESTER

			Credits
AGB	240	Internship/Co-op	3
AGB	248	Farm Management	3
AGB	249	Agricultural Sales and Service	3
ECO	201	Principles of Economics	3
		Elective-General*	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the program is to prepare students for jobs in agricultural businesses and to improve and add to the skills of students who will return to their home farms.

A graduate of Agribusiness should be able to:

1. write clear, concise, legible, and accurate technical reports.
2. use skills in verbal communication, speak logically, and use various types of communication techniques to promote sales and service and to develop leadership skills.

3. interpret farm records and apply the principles of management and economics as they relate to the farm, including agribusiness financing and interpreting computer print-outs.
4. analyze procedures involved in breeding, feeding, housing, and managing a dairy herd.
5. describe the physical and biological properties of soil, the use and general effects of fertilizer, and the proper use of chemicals in crop and livestock production.
6. identify various types of business organizations and business principles — including planning, organizing, financing and marketing.
7. describe the principles of breeding, feeding, marketing, and management of beef, swine, sheep, and poultry.
8. explain the marketing of agricultural products — including the psychology of selling and pricing and the importance of customer service.
9. demonstrate an attitude of responsibility toward agribusiness and the world of work.
10. use appropriate math skills to solve applied problems in agribusiness.
11. demonstrate an appreciation of physical fitness and lifelong recreational activities.
12. use microcomputers in farm and agribusiness management decision making.

AIR CONDITIONING/REFRIGERATION (RA)

Associate Degree/2 years

This program provides background knowledge and skills training in air conditioning, temperature and humidity control, air circulation, duct system design, thermostats, ventilating equipment and automatic controls. Students learn to repair equipment in the lab segments of the program. The combination of lab practice and theory prepares students for employment and advancement in today's air conditioning and environmental control industry.

Types of Jobs: Refrigeration and air conditioning equipment mechanic, estimator, sales representative, air conditioning lab technician, industrial physical plant maintenance and environmental control.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

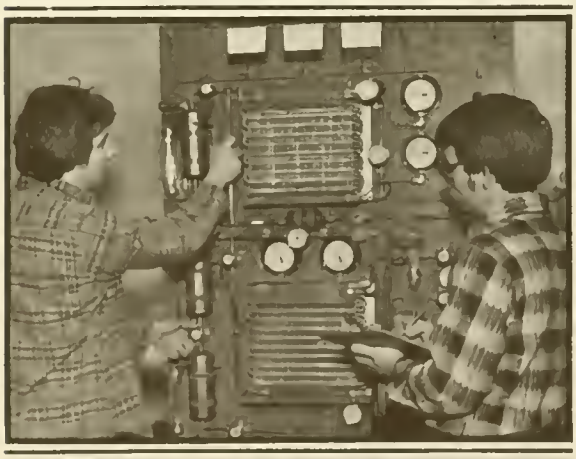
			Credits
ACR	511	Introduction to Refrigeration	5
ELT	531	Air Conditioning/Refrigeration Electricity	6
MTH	103	College Algebra & Trigonometry I	3
ENL	111	English Composition I	3
			17

SECOND SEMESTER

			Credits
ACR	521	Commercial Refrigeration Systems	4
ACR	522	Installation & Service Problems – Commercial	4
ELT	541	Electric Motors & Refrigeration Controls	5
PHS	500	Physics Survey	3
PED		Physical Education	1
			17

SUMMER TERM

			Credits
ACR	250	Air Conditioning/Refrigeration Work Experience	1



THIRD SEMESTER

			Credits
ACR	231	Theory & Operation of Air Conditioning & Heating Systems	4
ACR	232	Installation & Service Problems – Air Conditioning	5
PSY	111	General Psychology	3
PED		Physical Education	1
		Elective-Math/Computer Science	3
			16

FOURTH SEMESTER

			Credits
ACR	241	Air Movement and Ventilation	4
		Elective-Technical/Co-op*	3
ENL	201	Technical Writing	3
		Elective-Business	3
		Elective-General	3
			16

*One technical elective in Air Conditioning/Refrigeration, for example, ACR 242 Solar Heat/Energy Conservation, will be offered each spring semester. Students may also choose an elective from another technical associate degree program or enroll in Co-op.

PROGRAM OBJECTIVES

The goal of this program is to prepare students for employment in the field of commercial, residential, and industrial air conditioning and refrigeration installation, maintenance, and service.

A graduate of the program should be able to:

1. demonstrate the ability to do technical work in a variety of air conditioning and refrigeration fields; apply safety standards and understand and work with technical developments in the industry.
2. apply concepts of algebra and physics in the design, development, and analysis of refrigeration and air conditioning equipment and systems.
3. identify and demonstrate correct use of tools, materials, and equipment used in the trade.
4. demonstrate the ability to read and interpret blueprints and use blueprints when installing equipment.
5. troubleshoot air conditioning and refrigeration equipment using standard troubleshooting procedures.
6. write clear, concise, legible, and accurate technical reports using standard English and apply verbal communication skills in job-related activities.
7. read and interpret electrical schematics and use schematics when installing equipment.
8. estimate the cost of an installation and design an effective system for a specific location and use.
9. demonstrate a responsible attitude in relationships with employers and co-workers and toward the world of work.
10. demonstrate an awareness of and respect for customer/employer relations.
11. demonstrate knowledge of the operation and use of hermetic, reciprocating, and centrifugal compressors.
12. apply basic knowledge of air flow, ventilation, and energy conservation concepts to the design of systems using modern building design and solar energy technology.

AIR CONDITIONING/REFRIGERATION (RC)

Certificate/1 year

This program provides the training needed to understand and work with modern refrigeration installations. During lab sessions students troubleshoot and repair the types of breakdowns they will find on the job. The program covers air conditioning, temperature and humidity control and air circulators, and equipment installation — and emphasizes commercial reach-in and walk-in refrigeration units. Students also take introductory courses in electricity, electric motors and refrigeration theory.

Types of Jobs: Refrigeration equipment mechanic (installation, maintenance, repair), refrigeration equipment estimator, equipment sales.

FIRST SEMESTER

			Credits
ACR	511	Introduction to Refrigeration	5
ELT	531	Air Conditioning/Refrigeration Electricity	6
MTH	710	Technical Mathematics I	
		or	3
MTH	103	College Algebra & Trigonometry I	
ENL	711	Communications	
		or	3
ENL	111	English Composition I	
			17

SECOND SEMESTER

			Credits
ACR	521	Commercial Refrigeration Systems	4
ACR	522	Installation & Service Problems – Commercial	4
ELT	541	Electric Motors & Refrigeration Controls	5
PHS	500	Physics Survey	3
PED		Physical Education	1
			17

PROGRAM OBJECTIVES

The goal of this program is to prepare students for employment in the field of residential, commercial, and industrial refrigeration installation, maintenance, and service.

A graduate of the program should be able to:

1. identify and demonstrate correct use and care of refrigeration tools, materials, and equipment.
2. read and interpret electrical schematics and use schematics when installing equipment.
3. troubleshoot refrigeration equipment using standard procedures.
4. demonstrate familiarity with the accepted safety standards and requirements of the industry.
5. write clear, concise, legible, and accurate memos, work orders, and reports.
6. demonstrate a responsible attitude in relationships with employers and co-workers and toward the world of work.
7. use elementary math operations (addition, subtraction, multiplication, division), including decimals, fractions, and conversions in refrigeration work.
8. demonstrate a working knowledge of the service and installation of frozen food cabinets, walk-in coolers and ice machines used in supermarkets and restaurants.
9. understand changing air conditioning/refrigeration technology and develop new skills when necessary.
10. demonstrate a knowledge of heat pump installation and service.

ARCHITECTURAL TECHNOLOGY (AT)

Associate Degree/2 years

This program offers training in architectural drafting principles and practices. Students learn to create residential and commercial working drawings. It also includes design fundamentals, structural calculations and site planning theory.

Types of Jobs: Architectural drafting, estimator, detailer, or specification writer in private practice, corporate departments, public bureaus, construction firms, landscape architecture firms, and engineering fields.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
ARC	111	Statics	3
ARC	112	Architectural Graphics I	4
ARC	115	Working Drawings - Residential	3
ARC	116	Building Materials I	2
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
			18

SECOND SEMESTER

			Credits
ARC	122	Architectural Graphics II	3
ARC	121	Structures - Wood	2
ARC	125	Working Drawings - Commercial	3
ARC	232	Building Materials II	3
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
			17

THIRD SEMESTER

			Credits
ARC	236	Design Studio I	5
ARC	237	Seminar in Architectural History	5
ARC	238	Structures - Steel	3
ARC	233	Building Equipment I	3
PED		Physical Education	1
			17

FOURTH SEMESTER

			Credits
ARC	242	Building Equipment II	3
ARC	244	Professional Administration & Contract Documents	3
ARC	246	Design Studio II	6
ARC	247	Structures - Concrete	3
PED		Physical Education	1
			16

PROGRAM OBJECTIVES

The general objective of the Architectural Technology program is to give students the academic and practical training needed for a variety of careers. Students develop the entry-level skills needed for employment as architectural technicians. The program may also serve as a basis for additional education in such disciplines as architecture, architectural engineering, landscape architecture, urban design and planning, interior design and building construction.

A graduate of the Architectural Technology program should be able to:

1. understand and appreciate visual art.
2. demonstrate a responsible attitude toward the wise and efficient use of our natural resources.
3. demonstrate mastery of the skills needed for architectural presentations — including drawing, drafting, and model building.
4. demonstrate knowledge of building structure, materials, and methods of construction.
5. perform first order structural calculations related to wood, steel, and concrete.
6. demonstrate working knowledge of the environmental systems of structures (water, air quality, etc.); demonstrate skills in designing these systems.
7. explain professional practice and administration.
8. demonstrate basic knowledge of architectural design and planning.
9. apply working knowledge of site engineering and design.
10. demonstrate knowledge of architectural terminology and skills in verbal, written and visual communications.
11. use the mathematical skills needed in this field and math skills necessary for the development of visualization skills and logical thought processes.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

AUTO BODY REPAIR (AB)

Certificate/2 years

Auto Body Repair prepares students for employment and advancement in this field. Students develop skills in using tools and equipment through practical experience in the College's shop. The program covers the theory and skills of sheet metal repair, sanding, and applying fillers, primers and paint. It includes skills training in shrinking, stretching and welding, panel installation, interior trim and glass replacement. Students also develop skills in frame and steering alignment and in damage estimating and repair.

Types of Jobs: Work for insurance companies, repair shops, dealerships and self-employment.

FIRST SEMESTER

			Credits
ABC	713	Basic Auto Body (8 weeks)	7
ABC	714	Metal Work (8 weeks)	7
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
ABC	723	Auto Body Maintenance (8 weeks)	7
ABC	724	Panel Alignment (8 weeks)	7
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
ABC	833	Metal Work and Filling (8 weeks)	7
ABC	834	Painting (8 weeks)	7
		Optional Elective	0/3
			14/17

FOURTH SEMESTER

			Credits
ABC	843	Tools, Equipment and Collision Repairs (8 weeks)	7
ABC	844	Painting and Estimating (8 weeks)	7
		Optional Elective	0/3
			14/17

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The general goal of this program is to prepare students for careers in auto body repair, collision appraisal and shop management.

A graduate of the Auto Body Repair program should be able to:

1. write clear, concise, legible, and accurate repair orders, estimates, technical reports, and business letters.
2. demonstrate skill in basic communication and the ability to speak logically; use verbal communication skills in promoting sales and service and in developing leadership skills.
3. maintain service records and customer files.
4. identify factors involved in managing an auto body repair shop, including personnel, equipment, and customer relations.
5. diagnose common paint problems and make necessary repairs.
6. make automotive collision repairs to sheet metal components.
7. make repairs to automotive glass, upholstery, trim and related components.
8. demonstrate both efficiency and quality in automotive refinishing work.
9. diagnose and repair mechanical parts, other than sheet metal, damaged by collision.
10. demonstrate a responsible attitude toward auto body repair and the world of work.
11. use basic math skills (addition, subtraction, multiplication, division) including decimals, fractions, and conversions in auto body repair.

AUTOMOTIVE MECHANICS (AM)
Certificate/2 years

The Automotive program trains students in the skills needed to service and repair light commercial and passenger vehicles. The program emphasizes both theory and practical skills. Students develop skills in power train, steering, brakes, ignition, carburetion, engines and electrical components and assemblies.

Types of Jobs: General auto mechanic or technician in a dealership, independent garage, fleet operation, service station, self-employment.

FIRST SEMESTER

		Credits
AMT 510	Principles of Engine Systems I (8 weeks)	6
AMT 511	Principles of Engine Systems II (8 weeks)	6
MTH 710	Technical Mathematics I	3
		15

SECOND SEMESTER

		Credits
AMT 520	Principles of Chassis Systems (8 weeks)	6
AMT 521	Principles of Power Train & Accessories (8 weeks)	6
ENL 711	Communications	3
		15

THIRD SEMESTER

		Credits
AMT 630	Power Train & Accessories Service (8 weeks)	6
AMT 631	Engine System Service (8 weeks)	6
	Elective	3
		15

FOURTH SEMESTER

		Credits
AMT 640	Chassis System Service (8 weeks)	6
	Automotive Service Elective*	6
	Elective	3
		15

*Automotive Service Elective - Depending on student interest and enrollment, a minimum of one and a maximum of two of the following courses will be offered during a given semester.

AMT 641	Automatic Transmissions and Air Conditioning Service (8 weeks)
AMT 642	Engine and Electrical Overhaul (8 weeks)
AMT 643	Wheel Alignment and Advanced Chassis Service (8 weeks)

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The goal of this program is to prepare the student for jobs in the automotive field. The program prepares students to take written certification exams — for example, the National Institute for Automotive Service Excellence exam — and the Pennsylvania Vehicle Safety Inspection exams — written and practical — for certification as vehicle safety inspectors.

A graduate of the Automotive program should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.
2. diagnose and repair malfunctions and wear in one of the following specialized automotive service areas:
   a. engines
   b. automatic transmissions
   c. air conditioning
3. test, adjust and repair engine electrical, fuel and emission control components.
4. interpret wiring diagrams, test and repair starting, charging, lighting and accessory systems of vehicles.
5. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions in automotive work.
6. demonstrate the ability to write letters of application, resumes, memos, work orders and reports; recognize current forms and styles of the above.
7. demonstrate a responsible attitude toward the automotive service and manufacturing industry and the world of work.

AUTOMOTIVE TECHNOLOGY (AU)

Associate Degree/2 years

This program covers advanced operating theories of automotive systems and components. Students learn to apply automotive operating principles and to diagnose malfunctions in automotive systems. The program emphasizes the development of skills in service, repair and test procedures using modern equipment and special tools. Business management and specialized service courses prepare students for advancement in the automotive field.

Types of Jobs: Dealership service specialist, assistant manager, skilled jobs in automotive manufacturing, service equipment representative, rebuilding shop assembler, repair shop operator, parts department manager.

Recommended High School Subjects: One course in algebra for career students, two years of algebra for transfer students.

FIRST SEMESTER

			Credits
AMT	510	Principles of Engine Systems I (8 weeks)	6
AMT	511	Principles of Engine Systems II (8 weeks)	6
ENL	111	English Composition I	3
MTH	500	Technical Mathematics (2 yr. career)	
		or	3
MTH	103	College Algebra & Trigonometry I (4 yr. transfer)	
			18

SECOND SEMESTER

			Credits
AMT	520	Principles of Chassis Systems (8 weeks)	6
AMT	521	Principles of Power Train & Accessories (8 weeks)	6
EDT	101	Mechanical Drawing	2
MTH	105	Intermediate Algebra (2 yr. career)	
		or	3
MTH	104	College Algebra & Trigonometry II (4 yr. transfer)	
PED		Physical Education	1
			18

THIRD SEMESTER

			Credits
AMT	630	Power Train and Accessory Service (8 weeks)	6
AMT	631	Engine Systems Service (8 weeks)	6
ENL	201	Technical Writing	3
MGT	247	Small Business Management	3
			18

FOURTH SEMESTER

			Credits
AMT	640	Chassis Systems Service (8 weeks)	6
		Automotive Service Elective*	6
PHS	500	Physics Survey (2 yr. career)	
		or	3/4
PHS	100	Physics Mechanics (4 yr. transfer)	
PED		Physical Education	1
			16/17

Mathematics/Science Sequence

Career

MTH	500	Technical Math
MTH	105	Intermediate Algebra
PHS	500	Physics Survey

Transfer

MTH	103	College Algebra & Trigonometry I
MTH	104	College Algebra & Trigonometry II
PHS	100	Physics Mechanics

It is suggested all math deficiencies (as identified on the College's placement exams) be made up prior to enrollment due to the course load and technical nature of the program.

*Automotive Service Elective - Depending on student interest and enrollment, a minimum of one and a maximum of two of the following courses will be offered during a given semester.

AMT	641	Automotive Transmissions and Air Conditioning Service (8 weeks)
AMT	642	Engine and Electrical Overhaul (8 weeks)
AMT	643	Wheel Alignment and Advanced Chassis Service (8 weeks)

Co-op Options: Alternating Parallel Summer

PROGRAM OBJECTIVES

The goal of this program is to prepare students for jobs in the automotive field. The program also prepares students to take written certification exams — for example, the National Institute for Automotive Service Excellence exam — and the Pennsylvania Vehicle Safety Inspection exams — written and practical — for certification as vehicle safety inspectors.

A graduate of Automotive Technology should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.
2. diagnose and repair malfunctions and wear in one of the following specialized automotive service areas:
   a. engines
   b. automatic transmissions and air conditioning
   c. alignment and suspension
3. apply basic laws of physics and scientific principles to automotive systems and components when diagnosing problems and in product development.
4. record engineering data in mathematical terms and solve basic problems using technical mathematics, elementary algebra, and trigonometry.
5. interpret engineering data presented in graphs or charts, algebraic expressions, or proportional relationships.
6. create and interpret basic engineering drawings.
7. demonstrate knowledge of good management practices, including personnel, equipment, shop layout, and customer relations, in the automotive service shop.
8. maintain automotive service records, dealership warranty procedures, and customer files.
9. demonstrate skill in basic verbal communications and the ability to speak logically; use various types of verbal communication skills in sales and service and in developing leadership skills.
10. write clear, concise, and accurate repair orders, technical reports, service advertising copy, business memoranda, and business letters.
11. maintain business records, explain the factors to be considered in starting a new business, and state good management practices.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate a responsible attitude toward the automotive service and manufacturing industry and the world of work.

AVIATION MAINTENANCE TECHNICIAN (AC)

Certificate/2 years

This program prepares students for employment as aircraft and powerplant maintenance technicians. Students develop practical skills in aircraft powerplant maintenance and troubleshooting. The program also covers powerplant and maintenance theory. This program is approved by the Federal Aviation Administration, and as a graduate the student will be qualified to take the examinations for the Airframe and Powerplant Maintenance Certificate. See page 5 for special admission requirements for this program.

Types of Jobs: Maintenance technician for airlines, fixed base operators, and manufacturer's services.

FIRST SEMESTER

			Credits
APC	513	Basic Electricity	3
APC	514	Federal Air Regulations	2
APC	515	Material and Processes	3
APC	516	Aircraft Servicing/Fluid Liners and Fittings	3
APC	517	Weight and Balance/Physics	2
APC	518	Turbine Engines	3
MTH	515	General Aviation Math	3
			19

SECOND SEMESTER

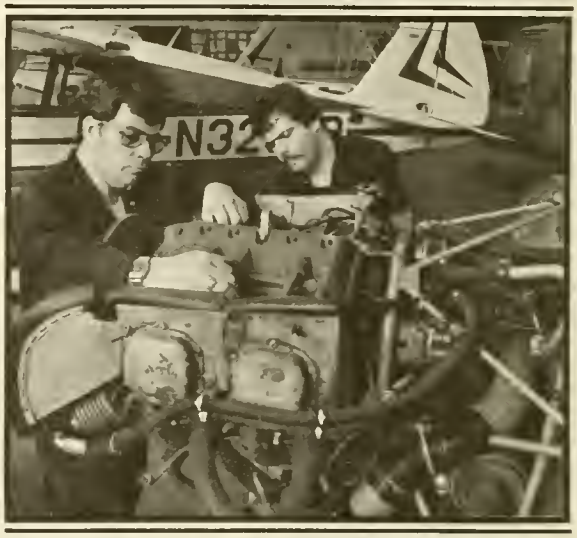
			Credits
APC	522	Engine Ignition Systems	3
APC	523	Engine Induction and Exhaust Systems	2
APC	524	Engine Fuel Systems	3
APC	525	Propellers	3
APC	526	Reciprocating Engines and Engine Inspection	7
EDT	104	Aircraft Drawing	2
			20

THIRD SEMESTER

			Credits
APC	633	Engine Cooling and Lubricating	4
APC	634	Engine Fire Protection and Instruments	2
APC	635	Engine Electrical	3
APC	636	Aircraft Electrical	4
APC	637	Aircraft Covering, Finishes and Welding	3
APC	638	Aircraft Assembly and Rigging/Inspection	3
			19

FOURTH SEMESTER

			Credits
APC	642	Aircraft Sheet Metal and Wood Structures	6
APC	643	Aircraft Landing Gear, Hydraulics Pneumatics, and Position/Warning	6
APC	644	Aircraft Communications/Navigation and Instruments	2
APC	645	Aircraft Atmosphere Control and Ice/Rain Control	3
APC	646	Aircraft Fuel and Fire Protection	2
			19



PROGRAM OBJECTIVES

The objective of the Aviation Maintenance Technician program is to prepare students to take the written, oral, and practical Federal Aviation Administration (F.A.A.) Examination. Students master the skills needed for aviation maintenance jobs.

A graduate of the Aviation Maintenance Technician program should be able to:

1. prepare F.A.A. maintenance forms accurately.
2. locate specific information in various aviation publications.
3. read and understand aircraft and powerplant service publications.
4. recognize the need for accuracy and thoroughness in work.
5. demonstrate professional skills in inspection, maintenance and repair.
6. observe and practice safety habits at all times.
7. demonstrate correct use of basic hand tools, special tools, and required testing equipment.
8. use mathematics and theory in aviation maintenance work.
9. list, define, and correctly use aviation maintenance terminology.
10. maintain high professional standards — as established by the F.A.A. and studied in the program — in aviation maintenance work.

AVIATION TECHNOLOGY (AD)

Associate Degree/2 years

This program prepares students for employment and advancement in aviation maintenance. Students develop practical skills in airframe and powerplant. Academic courses — in English and mathematics as well as in aviation — help students to understand the theoretical aspects of aviation maintenance.

As graduates students will be qualified to take the examination for the Airframe and Powerplant, F.A.A. (Federal Aviation Administration) Certificate. Graduates may also transfer to a baccalaureate program at a four-year college. (See page 5 for special admission requirements for this program.)

Types of Jobs: Immediate employment as maintenance technicians for airlines or fixed base operators. After several years of experience, graduates with this educational background may advance to positions as shop supervisors, aircraft salespersons, manufacturer service representatives, or engineering assistants in research and development.

Recommended High School Subjects: Three years of English and two years of high school algebra. A student cannot enter this program with any reading or math deficiencies because of the technical aspects of the program.

FIRST SEMESTER

			Credits
APC	513	Basic Electricity	3
APC	514	Federal Air Regulations	2
APC	515	Material and Processes	3
APC	516	Aircraft Servicing/Fluid Liners and Fittings	3
APC	517	Weight and Balance/Physics	2
APC	518	Turbine Engines	3
MTH	515	General Aviation Math	3
			19

SECOND SEMESTER

			Credits
APC	522	Engine Ignition Systems	3
APC	523	Engine Induction and Exhaust Systems	2
APC	524	Engine Fuel Systems	3
APC	525	Propellers	3
APC	526	Reciprocating Engines and Engine Inspection	7
EDT	104	Aircraft Drawing	2
			20

SUMMER SESSION I

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			7

SUMMER SESSION II

			Credits
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
PED		Physical Education	1
		Elective*	3/4
			7/8

THIRD SEMESTER

			Credits
APC	633	Engine Cooling and Lubricating	4
APC	634	Engine Fire Protection and Instruments	2
APC	635	Engine Electrical	3
APC	636	Aircraft Electrical	4
APC	637	Aircraft Covering, Finishes and Welding	3
APC	638	Aircraft Assembly and Rigging/Inspection	3
			19

FOURTH SEMESTER

			Credits
APC	642	Aircraft Sheet Metal and Wood Structures	6
APC	643	Aircraft Landing Gear, Hydraulics, Pneumatics, and Position Warning	6
APC	644	Aircraft Communications Navigation and Instruments	2
APC	645	Aircraft Atmosphere Control and Ice/Rain Control	3
APC	646	Aircraft Fuel and Fire Protection	2
			19

*MGT 110 Principles of Business or
PHS 100 Physics Mechanics are suggested.

All deficiencies (as identified in the College's placement exams) must be made up prior to enrolling in the Aviation programs.

PROGRAM OBJECTIVES

The major objectives of the Aviation degree program are: (1) to prepare students to pass the written, oral and practical Federal Aviation Administration (F.A.A.) Examination for the Airframe and Powerplant Maintenance Certificate; (2) to train students in the skills needed for jobs in aircraft maintenance; (3) to provide knowledge needed for supervisory and technical jobs.

A graduate of the Aviation Technology degree program should be able to:

1. prepare F.A.A. maintenance forms accurately.
2. locate specific information in various aviation publications and be able to interpret and apply the information.
3. read and understand aircraft and powerplant service publications.
4. recognize the need for accuracy and thoroughness — as defined by the F.A.A. — in work.
5. demonstrate standard inspection procedures, and maintenance and repair skills following F.A.A. guidelines.
6. demonstrate and practice safety habits at all times.
7. demonstrate correct use of basic hand tools, special tools, and required testing equipment.
8. use mathematics, blueprints, diagrams, and theory in aviation maintenance work.
9. list, define, and correctly use aviation maintenance terminology.
10. maintain high professional standards — as established by the F.A.A., the aviation industry, and through program instruction — in aviation maintenance and in dealing with the public.
11. demonstrate clear, concise writing ability in composing letters, shop orders, and technical reports.
12. evaluate consumer needs and relate them to current business procedures in aviation maintenance.
13. use current decision-making techniques and demonstrate the potential for managerial growth.
14. identify the need for physical fitness and positive leisure activities.

BROADCASTING (BR)

Associate Degree/2 years

This program prepares students for entry-level jobs in broadcasting, for work in related fields such as public relations or for transfer to a four-year program in communications. Practical courses in broadcasting and mass communications are combined with courses in the liberal arts to provide a well-rounded program. Courses include announcing, broadcast writing, radio station operation and management, law and ethics, public relations and media management. The program also provides essential related coursework in English, government, the social sciences, business, and math or science.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter.

FIRST SEMESTER			Credits
MCM	111	Introduction to Mass Communications	3
BRC	114	Audio in Media	3
JOU	111	Newswriting	3
SEC	509	Typewriting or passing score on typing exam	1
ENL	111	English Composition I	3
ENL	202	Fundamentals of Speech	3
			16

SECOND SEMESTER			Credits
BRC	126	Introduction to Radio Station Operation	2
BRC	233	Announcing Techniques	3
MCM	122	Media and the Law	3
GOV	241	State and Local Government	3
PSY	111	General Psychology or	
SOC	111	Introduction to Sociology or	3
MGT	235	Business Psychology	
ENL	121	English Composition II	3
			17

THIRD SEMESTER			Credits
BRC	223	Broadcast Writing	3
BRC	236	Radio Station Operation and Management	2
ECO	201	Principles of Economics or	3
MGT	110	Principles of Business	
GOV	231	American Government-National	3
PED		Physical Education	1
		Math or Science Elective*	3
			15

FOURTH SEMESTER			Credits
BRC	240	Station Management Practicum** or	3
MGT	247	Small Business Management	
MCM	242	Media Management & Community Responsibility	3
MCM	243	Public Relations	3
ADV	101	Advertising	3
PED		Physical Education	1
		Elective***	3
			16

*100 or 200-level course in biology, chemistry, environmental science, geography, geology, mathematics or physics.

**Cooperative Education experience approved by the Division Director may be substituted.

***Elective may be any 100 or 200-level course.
Suggested Electives:
-ENL 201
-PSY 111, SOC 111, MGT 235, ECO 201, MGT 110, BRC 242, or MGT 247 if not used to meet specific requirements in the first and second semesters.

PROGRAM OBJECTIVES

The general objective of the Broadcasting program is to prepare students for positions in small to medium-size operations in radio broadcasting and related mass communication industries. Students are also prepared for transfer to baccalaureate degree programs.

Graduates of the Broadcasting program will be able to:

1. evaluate their role as individual citizens in a community as well as their unique importance as trained mass media persons with the potential to influence the lives of others in the community.
2. analyze the responsibilities of the mass media in the United States.
3. state ethical canons and governmental regulations or laws which govern the production of mass media; correlate personal responsibility and those laws and canons.
4. distinguish the philosophical and practical standards and goals of various forms of mass media.
5. explain examples of the impact of mass media upon the history of the United States and upon society.
6. interview, research, and otherwise gather information needed to write and produce specialized material—including news, features, reviews, interviews, commercial announcements, public service announcements, and public relations news releases and sound clips—for dissemination through electronic or print media.
7. demonstrate proficiency in selecting and announcing music from recorded material and arrange musical selections in a logical program form using several types of recorded musical styles.
8. demonstrate proficiency in the use of the tools of audio production, including control room boards, mixing boards, microphones, tape machines, turntables, telephone coupling equipment, editing equipment, and various types of tapes.
9. demonstrate effective performance in various types of announcing for mass media, including news, interviews, features, sports, talk shows, commercial announcements and public service announcements.
10. demonstrate mass media-related employee and management skills which reflect effective basic business principles.
11. demonstrate the ability to acquire and process demographic information on a small to medium-sized market, and design a mass media plan to serve the particular needs of that market.
12. evaluate the nature of advertising in the United States as it relates to the national economy and create usable advertising for the mass media.
13. interview community leaders on local community needs and prepare a community needs assessment study as outlined by FCC regulations.
14. demonstrate proficiency in job seeking, including the preparation of effective letters of application, resumes and audition tapes.
15. apply skills in writing, market analysis, communications, and in developing specified outcome plans to related fields such as public relations.

BUSINESS MANAGEMENT (BM)
Associate Degree/2 years

This program provides basic business knowledge. It covers management theory and application, business concepts, and the effect of business on the economy.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government.

FIRST SEMESTER

			Credits
MGT	110	Principles of Business*	3
MGT	111	Business Mathematics	3
ACC	112	Accounting I*	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
MGT	230	Business Communications	3
ACC	122	Accounting II	3
CSC	118	Fundamentals of Computer Science*	3
ECO	201	Principles of Economics*	3
PED		Physical Education	1
		Elective-Social Science/Humanities	3
			16

THIRD SEMESTER

			Credits
MGT	231	Business Law I*	3
ACC	230	Managerial Accounting	3
ENL	202	Fundamentals of Speech	3
		Elective-Computer Science*	3
		Elective*	3
			15

FOURTH SEMESTER

			Credits
MGT	125	Finance*	3
MGT	241	Business Law II	3
MGT	248	Supervision and Human Relations	3
MKT	240	Marketing	3
		Elective*	3
			15

*Equivalent AIB (American Institute of Banking) courses may be substituted with Division approval.

Co-op Options:
Parallel
Summer

EVENING PROGRAM

Courses required for the associate degree in Business Management are also offered in the evenings and on weekends for the convenience of students who are unable to attend weekday classes. Students may complete all courses required for a degree in Business Management by enrolling in evening and weekend courses on a part-time basis. Part-time students may require more than two years to complete the program.

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student for employment in business management. As an alternative, graduates may pursue advanced degrees. The program will also upgrade the skills of those now employed in this field.

The graduate should be able to:

1. demonstrate specialized knowledge and skills needed for employment in business management.
2. demonstrate potential for managerial growth and the ability to use the tools of modern decision making.
3. demonstrate knowledge of profit motives.
4. apply generally accepted accounting principles.
5. identify, compare, and use financial statements and management information systems.
6. evaluate consumer needs, and relate them to current business procedures.
7. relate in a positive manner to supervisors, peers, and subordinates.
8. apply knowledge of computer technology systems in making managerial decisions.
9. demonstrate skills in effective verbal and written communication.
10. identify the laws affecting business.
11. identify the need for physical fitness and positive leisure activities.

CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY (CB)

Associate Degree/2 years

This program covers the theoretical and practical aspects of light building construction. Students learn the principles and techniques of light-frame carpentry and masonry. The program emphasizes design, construction, cost estimation, and management.

Types of Jobs: Positions leading to supervisor, building technician, or construction superintendent.
Recommended High School Subjects: Two years of algebra, one year of science. One year of geometry is desirable.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
BCT	111	Woodworking for Carpenters	4
BCT	112	Construction Carpentry	4
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
BCT	121	Estimating and Blueprints	2
BCT	122	Block Construction	6
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
BCT	231	Roof-framing Theory	3
BCT	232	Brick Construction	5
ELT	110	Electricity for the Trades	3
ECO	201	Principles of Economics	3
PHS	100	Physics-Mechanics	4
			18

FOURTH SEMESTER

			Credits
BCT	241	Advanced Carpentry	4
BCT	242	Building Construction Technology	6
BCT	243	Concrete Construction	3
		Elective-General*	3/4
			16/17

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The general objective is to prepare students for jobs in the building construction industry. Students develop an understanding of all basic trade skills and acquire the background needed to solve trade-related problems. Based on knowledge of the construction industry, their skills and interests, students will be able to plan their careers. This program may serve as a basis for continued education leading to a Bachelor's Degree in fields such as building construction and/or vocational education. Students will also learn and practice basic management skills in building technology.

A graduate of the Building Construction Technology program should be able to:

1. write clear, concise, legible, and accurate technical reports and use verbal communication skills in job-related activities.
2. demonstrate the basic manipulative skills of the trade needed to layout and plan work and to erect building frames.
3. interpret and prepare plans, drawings, specifications, lines, symbols, and abbreviations on working drawings or blueprints.
4. demonstrate his/her ability to lay out and erect a platform or western frame structure.
5. analyze specifications and contract drawings; make accurate quantity take-offs and labor estimations to develop an estimated construction cost for a building project.
6. demonstrate basic knowledge and skills in masonry and concrete construction.
7. describe various types of materials and methods used in the construction trade.
8. describe the organization, financing, labor relations, selling, pricing, customer service, management, and other aspects of business.
9. describe the complexity of the building construction industry, the relationships among the various trades; methods of communication and coordination among all trades and professions in the industry.
10. solve building construction problems using algebra and trigonometry.
11. apply scientific procedures learned in physics to building construction problems.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

CIVIL ENGINEERING TECHNOLOGY (CT)

Associate Degree/2 years

This program trains students in the skills needed to assist civil engineers in planning, designing and building highways, railroads, bridges, airfields, buildings, and dams. Experience with modern equipment prepares students to meet the challenge of recent technical developments.

Types of Jobs: Engineering technician, surveyor, inspector, drafting, cartographer, design technician, and photogrammetrist.
Recommended High School Subjects: Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration. (Communications, Humanities, Social Science, Mathematics, Science, Allied Health, Business or Computer Science.)

FIRST SEMESTER

			Credits
CET	111	Materials of Construction	2
CET	112	Engineering Drawing	3
CET	113	Introductory Surveying	2
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
		Elective-General*	3/4
			17/18

SECOND SEMESTER

			Credits
CET	121	Plane Surveying	4
CET	122	Topographic Drawing and Cartography	3
CET	244	Photogrammetry	3
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
			17

THIRD SEMESTER

			Credits
CET	231	Route Surveying	4
CET	232	Origin, Distribution & Behavior of Soils	3
CET	233	Statics	3
CET	234	Highway Engineering Technology	3
PHS	100	Physics-Mechanics	4
			17

FOURTH SEMESTER

			Credits
CET	241	Advanced Surveying	3
CET	242	Fluid Mechanics	3
CET	243	Strength of Materials	3
ECO	201	Principles of Economics	3
CSC	103	Introduction to Computers with FORTRAN	3
		Elective-General*	
		or	3
		Approved Co-op	
			18

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Civil Engineering Technology program is to prepare students for technical-level positions in the field of civil engineering. The program also provides an overview of the field and prepares students for advanced study.

A graduate of the Civil Engineering Technology program should be able to:

1. distinguish between various types of surveys and select and use the proper instruments and methods for each type of survey. These will include boundary, control, construction, topographic and geodetic surveys.
2. construct a cartographic and topographic map using recognized mapping procedures.
3. use aerial photographs in making engineering measurements and topographic maps.
4. apply basic criteria used to design and locate highways and estimate earthwork quantities for highway construction.
5. determine and use the engineering properties of the basic construction materials such as steel, concrete, wood, and soil.
6. understand the functions of basic structural components and be able to design these components to resist applied loads.
7. demonstrate a working knowledge of the mechanics of compressible and incompressible fluid flow and their applications in piping systems, pumps, open channels, and reservoirs.
8. communicate effectively through the skills learned in English Composition and Engineering Drawing.
9. use social science concepts for a better understanding of himself or herself and to relate more effectively to others.
10. use algebra and trigonometry to solve problems related to civil engineering.
11. apply scientific procedures learned in physics in solving engineering problems.
12. recognize the need for physical fitness and lifelong recreational activities through physical education.
13. prepare the computer programs needed to solve engineering problems.
14. demonstrate fundamental skills and knowledge in the use of computer aided drafting (CAD) and computer aided manufacturing (CAM).
15. perform basic drawing functions on computer aided design equipment.

CLERICAL STUDIES (BT)

Certificate/1 year
(Starts in January of each year)

This program provides the fundamentals of typewriting, machine calculation, word processing and clerical procedures. It also covers indexing principles, filing, and basic office techniques.

Types of Jobs: Clerk-typist, receptionist, word processor, filing, general clerical, payroll work, machine transcription.

FIRST SEMESTER

			Credits
SEC	111	Typewriting I	3
CLS	717	Clerical Procedures	7
ENL	711	Communications	3
		Elective	3
			16

SECOND SEMESTER

			Credits
MGT	111	Business Mathematics	3
MGT	230	Business Communications	3
CLS	728	Clerical Workshop	8
SEC	121	Typewriting II	3
			17

PROGRAM OBJECTIVES

The general objective of the Clerical Studies program is to prepare students for clerical positions.

The graduate should be able to:

1. demonstrate skills in performing routine office tasks.
2. write and speak clearly and effectively.
3. perform basic clerical office procedures.
4. demonstrate basic knowledge of modern office equipment and office supplies.
5. apply working knowledge of duplicating and other copying methods, word processing, and computational skills.
6. assess and influence behavior among supervisors, peers, and subordinates.
7. apply general knowledge of the social sciences, and understand their effect on our society.

COMPUTER INFORMATION SYSTEMS (CS)

Associate Degree/2 years

Computer Information Systems offers students the background and skills needed to enter this fast-growing field. The program offers a strong background in commonly used programming languages, including PASCAL and COBOL. Students may also elect other languages—RPG, BASIC, Advanced Assembler and FORTRAN. The program includes a major emphasis in systems analysis, file processing, data structures and data base processing.

Types of Jobs: Entry-level application programming. With experience graduates could advance to positions in systems analysis, systems design, programming and systems project leadership and management, data processing and information systems management, and general management.
Recommended High School Subjects: Two units of math, including algebra.

FIRST SEMESTER

			Credits
ACC	112	Accounting I	3
CSC	112	Programming In PASCAL	3
CSC	118	Fundamentals of Computer Science	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I*	
		or	3
MTH	103	College Algebra & Trigonometry I	
SEC	509	Typewriting	1
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
CSC	125	Data and Information Structures	3
CSC	128	COBOL Programming I	3
ENL		English Requirement**	3
MTH	102	Introduction to Mathematics II*	
		or	3
MTH	104	College Algebra & Trigonometry II	
PED		Physical Education	1
		Elective - Math/Science/Business	3/4
			16/17

THIRD SEMESTER

			Credits
CSC	230	Computer Systems with Assembler	3
CSC	235	Systems Analysis and Design Methods	3
CSC	238	COBOL Programming II	3
		Elective - Computer Science***	3
		Elective - Math/Science/Business	3/4
			15/16

FOURTH SEMESTER

			Credits
CSC	240	File and Database Processing	3
CSC	248	Applied Software Development	3
		Elective - Computer Science***	3
		Elective - Math/Science/Business	3/4
		Elective - Social Science/Humanities	3
			15/16

*Must complete MTH 101 - 102 or MTH 103 - 104 sequence.

**Either ENL 121 - English Composition II, ENL 201 - Technical Writing, or ENL 202 - Fundamentals of Speech.

***Computer Science Electives:
CSC 231 Programming in RPG
CSC 232 Programming in BASIC
CSC 239 FORTRAN with Plotting
CSC 244 Advanced Assembly Language

EVENING PROGRAM

Courses required for the associate degree in Computer Information Systems are also offered in the evenings and on weekends for the convenience of students who are unable to attend weekday classes. Students may complete all courses required for a degree in Computer Information Systems by enrolling in evening and weekend courses on a part-time basis. Part-time students may require more than two years to complete the program.

PROGRAM OBJECTIVES

The general objective of Computer Information Systems is to prepare students for jobs as computer programmers or junior systems analysts. As an alternative, graduates may pursue advanced degrees. The program will also upgrade the skills of those employed in the field.

The graduate should be able to:

1. write effective, efficient computer programs in PASCAL, COBOL, BASIC and Assembler languages.
2. demonstrate ability to reason logically, to analyze, to synthesize, and to evaluate technical information and to apply these processes.
3. demonstrate skills in verbal and written communications.
4. relate in a positive manner to supervisors, peers, and subordinates.
5. use structured programming techniques.
6. prepare written documentation of computer programs.
7. assist in the design of business systems.
8. use system software packages to execute computer jobs.
9. identify the concepts and organization of various operating systems.
10. design and incorporate data controls from data entry to completed output.
11. use interactive programming techniques.
12. perform basic operations on a computer system and related data processing equipment.
13. apply generally accepted accounting and mathematical principles.
14. apply general knowledge of the social sciences.
15. identify the need for physical fitness and positive leisure activities.

COMPUTER OPERATOR (CO)

Certificate/1 year

This program trains students in all aspects of data processing operations and the effective use of the equipment. The student is prepared for entry-level jobs in industry as a qualified computer operator. This program provides an option for those students who are interested in data processing careers, but who do not want to be programmers.

Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives.

FIRST SEMESTER

			Credits
COP	713	Computer Operations I	6
CSC	118	Fundamentals of Computer Science	3
ACC	112	Accounting I	3
SEC	509	Typewriting	1
ENL	111	English Composition I	3
			16

SECOND SEMESTER

			Credits
COP	723	Computer Operations II	4
COP	724	Computer Operations Internship	2
CSC	120	Business Computer Applications	3
ENL	201	Technical Writing	3
		Elective - Computer Science	3/4
			15/16

PROGRAM OBJECTIVES

The general objective of the Computer Operator program is to prepare the student for jobs in computer operations in such positions as computer operator, peripheral equipment operator, data entry clerk, or data controller.

The graduate should be able to:

1. operate computer systems.
2. demonstrate skills in technical writing.
3. relate in a positive manner to supervisors, peers, and subordinates.
4. use system utility programs.
5. interpret and manage data controls from data entry to completed output.
6. interpret and use written documentation for program execution.
7. apply job control language to perform computer jobs.
8. operate peripheral and other data processing equipment.
9. maintain operation logs and libraries.
10. perform routine housekeeping tasks in the computer area and general maintenance on the equipment.
11. apply generally accepted accounting principles.

CONSTRUCTION CARPENTRY (CC)
Certificate/2 years

This program provides training in carpentry and masonry skills. Students develop skills in the correct use of hand tools, portable power tools and portable power equipment — they also become licensed in the use of power activated tools. The program includes classroom instruction in construction methods, procedures and materials. Students gain experience through working on on and off-campus construction projects under the supervision of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities; employment in plants or factories where building units, components, or building materials are made or sold.

FIRST SEMESTER

			Credits
CNC	711	Surveying, Layout & Blueprint Reading (8 weeks)	2
CNC	712	Concrete and Block (8 weeks)	4
CNC	713	Brick and Stone (8 weeks)	6
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			18

SECOND SEMESTER

			Credits
CNC	721	Framing and Sheathing (8 weeks)	6
CNC	722	Exterior Finish (8 weeks)	6
ARC	102	Basic Architectural Drafting	3
			15

THIRD SEMESTER

			Credits
CNC	831	Interior Finish (8 weeks)	6
CNC	832	Interior Trim (8 weeks)	6
CNC	833	Blueprints and Specifications	3
		Optional Elective	0/3
			15/18

FOURTH SEMESTER

			Credits
CNC	841	Specialty & Related Trades (8 weeks)	4
CNC	842	Practical Construction Experience (8 weeks)	4
CNC	843	Building Trades Estimating (8 weeks)	3
CNC	844	Personal & Job Orientation (8 weeks)	3
		Optional Elective	0/3
			14/17

PROGRAM OBJECTIVES

The general objective of this program is to train students in the basic skills and knowledge needed for entry-level jobs in building construction.

A graduate of the Construction Carpentry program should be able to:

1. demonstrate basic knowledge and skills in the use of the transit and other measuring devices for site preparation and building layout.

2. demonstrate basic knowledge and skills in masonry and concrete construction.
3. demonstrate basic knowledge and skills in the layout and construction of building framework and sheathing.
4. demonstrate basic knowledge and skills in the installation of exterior siding, roofing, trim and millwork, and building insulation.
5. demonstrate basic knowledge and skills in the installation of interior finish, floors, walls and ceilings.
6. demonstrate basic knowledge and skills in the installation of doors and interior trim; build and/or install cabinet work and finish stairways.
7. demonstrate basic knowledge of the trades related to the building industry — for example, ceramic tile and resilient floor installations.
8. look for, secure, and keep a job; understand the factors involved in self-employment and the importance of customer service; develop and work toward personal goals.
9. read and interpret blueprints and specifications, prepare basic architectural drawings, and estimate building costs.
10. use the basic skills of verbal and written communication needed to understand instructions and present ideas and instructions in a clear and logical manner.
11. use the basic math skills required on the job and needed to develop visualization skills and logical thought processes.
12. practice safe work habits, demonstrate responsible attitudes, and produce high quality work.

DAIRY HERD MANAGEMENT (DY)

Certificate/1 year

The Dairy Herd Management program provides training in the skills needed to successfully manage and operate a dairy farm. The program covers all aspects of dairy farm management — from soil preparation and feed crop production to milk processing. Dairy farm management — accounting and decision making — are included. Whether students plan to return to their family farms or to work as herd managers for large dairy operations, this program offers them the necessary skills.

Types of Jobs: Dairy farm manager, dairy herds manager, farm manager (general), Dairy Herd Improvement Association field technician.

FIRST SEMESTER

		Credits
DHM 711	Soils & Soil Fertility	3
DHM 712	Forage Production	3
DHM 713	Dairy Feeding and Management	3
DHM 714	Dairy Herd Health	3
MTH 710	Technical Mathematics I	3
		15

SECOND SEMESTER

		Credits
DHM 721	Financing Dairy Enterprises	3
DHM 722	Milking Management	3
DHM 723	Farm Records and Analysis	3
DHM 724	Animal Breeding and Reproduction	3
DHM 725	Replacement Stock Management	3
ENL 711	Communications	3
		18

PROGRAM OBJECTIVES

The objective of this program is to train students in the skills needed to successfully manage and operate a dairy farm. The program emphasizes the practical aspects of dairy farm operation.

A graduate of Dairy Herd Management should be able to:

1. analyze and work with soils — check soil conditions, select and apply the correct fertilizer, cultivate soil, calculate fertilizer formulas — and plan crops for dairy forage production.
2. understand financial institutions and programs as they relate to agriculture and apply the necessary financial principles.
3. develop dairy herd feeding programs which meet nutritional requirements for milk production, herd reproduction, maintenance and growth — based on knowledge of forage analysis, feed handling, and feed storage facilities.
4. apply health standards and sanitary milking procedures — with an emphasis on preventing herd health problems — and maintain milking equipment and facilities.
5. design a breeding and reproduction program using knowledge of sire selection, physiology related to reproduction and artificial insemination.
6. demonstrate skills in keeping farm accounts and interpret records related to the economic aspects of dairy production.
7. identify health problems of the herd which require treatment or diagnosis in order to maintain a healthy, productive herd.
8. demonstrate knowledge of the management techniques needed for success in the dairy industry.
9. demonstrate a strong work ethic.

DENTAL HYGIENE (DH)

Associate Degree/2 years

This program offers the theoretical and clinical training needed for a variety of dental hygiene careers. The program provides a diversified background — to prepare students for licensing exams, for additional education, for jobs. Students must earn a minimum grade of "C" in each aspect of their dental hygiene courses. Failure to do so will result in termination from the program. See page 5 for special admission requirements for this program.

Types of Jobs: Hygienists are employed by dentists in private dental practices, research, government health agencies, school systems, hospital and industrial clinics, military services and in dental hygiene education programs.

Required High School Courses: Because of the strong emphasis on science in the dental hygiene program, applicants must have successfully completed one year of high school biology and two years of high school algebra. It is also recommended that the applicant have an additional laboratory science (i.e., physics, chemistry).

FIRST SEMESTER

			Credits
DHG	100	Introduction to Dental Hygiene	4
DHG	115	Oral Anatomy & Histology	3
BIO	115	Human Anatomy & Physiology I	4
CHM	107	General Organic Chemistry	3
FHD	112	Nutrition	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
DHG	121	Dental Materials	2
DHG	123	Periodontics I	1
DHG	124	Clinical Dental Hygiene I	4
DHG	126	Dental Radiology	3
BIO	125	Human Anatomy & Physiology II	4
BIO	201	Microbiology	4
			18

THIRD SEMESTER

			Credits
DHG	230	Clinical Dental Hygiene II	5
DHG	236	Periodontics II	1
DHG	239	General & Oral Pathology	2
DHG	243	Dental Specialties	3
DHG	245	Pharmacology	2
ENL	111	English Composition I	3
			16

FOURTH SEMESTER

			Credits
DHG	241	Community Dental Health	2
DHG	242	Clinical Dental Hygiene III	4
DHG	244	Dental Practice Orientation	2
ENL	202	Fundamentals of Speech	3
PSY	111	General Psychology	3
PED		Physical Education	1
		Elective-Social Science	3
			18

PROGRAM OBJECTIVES

The general objective of the Dental Hygiene program is to prepare students to successfully pass the National Dental Hygiene Board examinations, the Northeast Regional Boards, the required examinations for selected states, and to qualify for employment as dental hygienists.

The Dental Hygiene graduate should be able to:

1. apply knowledge of the design, uses, and sharpening methods of dental hygiene instruments.
2. identify anatomical landmarks of the head and neck and identify deviations from normal.
3. use correct anatomical terminology in classifying all permanent and primary teeth on the basis of morphological and histological characteristics and occlusion.
4. apply knowledge of microbiology in aseptic techniques while performing a complete and thorough prophylaxis.
5. demonstrate appropriate preventive oral health procedures.
6. develop, process, and evaluate all types of intra and extra oral radiographs.
7. apply knowledge of interpersonal and motivational skills and communication techniques learned in English, speech, psychology, and social sciences when working with patients, other members of the dental health team, and community groups.
8. operate all dental equipment safely, effectively, and efficiently.
9. demonstrate a commitment to professional organizations through attending meetings, seminars, and continuing education programs.
10. apply knowledge of dental hygiene skills in a variety of settings (e.g., private practice, specialty practice, public institutions, industry, public health, etc.).
11. administer first aid and emergency treatment.
12. explain properties, dosage, actions, and reactions of drugs used in dentistry.
13. apply the concepts of anatomy, physiology, and nutrition in relating dental health to total health.
14. record all vital signs accurately and maintain accurate health histories, patient records and forms; conform to legal guidelines related to these materials.
15. develop sound ethical, philosophical, and moral professional characteristics.
16. apply concepts of chemistry in analyzing dental materials and relate them to body processes.
17. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

DIESEL MECHANICS (DM)

Certificate/2 years

This program covers the theories and practical skills of diesel mechanics. Students develop the skills needed to work with diesel-powered highway vehicles, industrial and marine engines and commercial powerplants. Some specialization — in fuel injection service, engine repair and rebuilding, power train, brakes, steering, and chassis work is available. Students may start this program in the fall, spring or summer semester. Students are required to enroll for at least one summer semester.

Types of Jobs: Heavy duty truck mechanic for truck dealership, independent garage, truck fleet, or contractor. Industrial engine mechanic in mining, quarrying, construction equipment, or marine waterways fleet. Also field service representative for diesel engine manufacturer or distributor.

FIRST SEMESTER

		Credits
DMC 513	Introduction to Diesel Mechanics (8 weeks)	7
DMC 514	Internal Combustion Engines (8 weeks)	7
MTH 710	Technical Mathematics I	3
		17

SECOND SEMESTER

		Credits
DMC 523	Four-Cycle Diesel Engines (8 weeks)	7
DMC 524	Two-Cycle Diesel Engines (8 weeks)	7
ENL 711	Communications	3
		17

THIRD SEMESTER

		Credits
DMC 533	Fuel Injection Systems I (8 weeks)	7
DMC 534	Fuel Injection Systems II (8 weeks)	7
	Optional Elective	0/3
		14/17

FOURTH SEMESTER

		Credits
DMC 543	Truck Tractor Power Train (8 weeks)	7
DMC 544	Truck Tractor Chassis (8 weeks)	7
	Optional Elective	0/3
		14/17

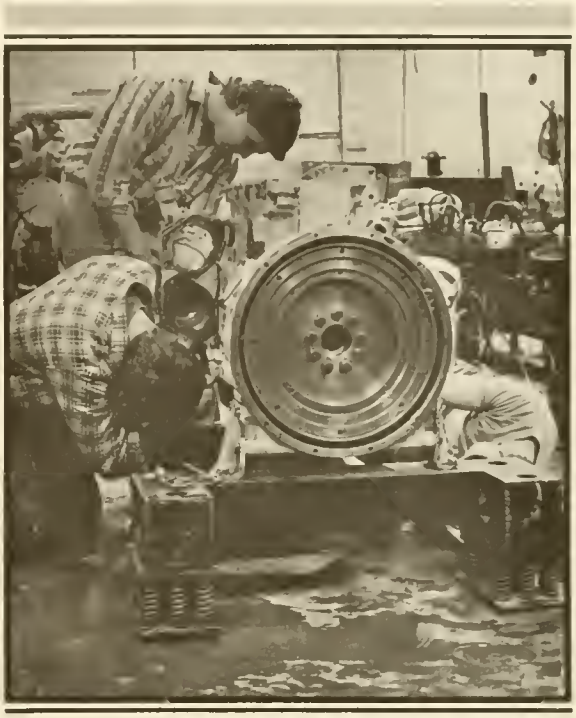
Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The goal of this program is to prepare students for diesel mechanic careers in transportation, construction, marine, and related fields. The program also prepares students to take the Pennsylvania Vehicle Safety Inspection exam required for certification as a vehicle safety inspection mechanic.

A graduate of Diesel Mechanics should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of diesel engines.



2. demonstrate correct service of:
   a. diesel engines
   b. truck transmission and drive trains
   c. fuel systems, and other engine accessories
3. perform state inspections.
4. diagnose equipment failure, isolate faulty systems or components, and make necessary repairs.
5. interpret wiring diagrams, test and make repairs to starting, charging, lighting, and accessory systems on vehicles.
6. use basic math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions in diesel mechanics work.
7. write clear, concise, and accurate abstracts and reports.
8. demonstrate safe work habits and describe their importance to the diesel industry and OSHA.
9. demonstrate a responsible attitude toward diesel service, the diesel manufacturing industry and the world of work.

DIESEL TECHNOLOGY (DD)

Associate Degree/2 years

This program covers both theory and practical skills in diesel mechanics. Hands-on work in diesel is a major component of the program. Classroom work provides a strong background in the theoretical aspects of diesel mechanics and prepares students to take the National Institute of Automotive Service Excellence Examinations (NIASE) and the Pennsylvania Vehicle Safety Inspection Certification Examination. The program prepares students for work in diesel mechanics and for additional education at the baccalaureate level.

Types of Jobs: Immediate employment as maintenance technicians in the trucking industry. With several years of experience graduates may advance to such positions as shop supervisor, truck salesperson, manufacturer service representative or engineering assistant in research and development.
Recommended High School Subjects: Three years of English and two years of algebra. A student cannot enter this program with any reading or math deficiencies.

FIRST SEMESTER

			Credits
DMC	513	Introduction to Diesel Mechanics (8 weeks)	7
DMC	514	Internal Combustion Engines (8 weeks)	7
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
DMC	523	Four-Cycle Diesel Engines (8 weeks)	7
DMC	524	Two-Cycle Diesel Engines (8 weeks)	7
MTH		Elective*	3
			17

SUMMER SESSION

			Credits
ENL	111	English Composition I	3
PHS	100	Physics-Mechanics	4
		Elective**	3
			10

THIRD SEMESTER

			Credits
DMC	533	Fuel Injection Systems I (8 weeks)	7
DMC	534	Fuel Injection Systems II (8 weeks)	7
ENL	201	Technical Writing	3
			17

FOURTH SEMESER

			Credits
DMC	543	Truck Tractor Powertrain (8 weeks)	7
DMC	544	Truck Tractor Chassis (8 weeks)	7
EDT	101	Mechanical Drawing	2
PED		Physical Education	1
			17

*MTH 104 College Algebra & Trigonometry II, or
MTH 201 Elementary Statistics I

**Mathematics, Science, or Business Management

PROGRAM OBJECTIVES

The major objectives of the Diesel Technology program are: 1) to prepare students for such careers as maintenance technician, shop foreperson, service writer, service representative for a manufacturer or distributor; 2) to provide the background needed for additional education; 3) to prepare students to take the Pennsylvania Vehicle Safety Inspection Certification Examination and the National Institute of Automotive Service Excellence Examinations (NIASE) in heavy duty truck mechanics; 4) to prepare students for employment at the supervisory and technical level.

A graduate of Diesel Technology should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of diesel engines.
2. demonstrate correct service of:
   a. diesel engines
   b. truck transmissions and drive trains
   c. fuel systems and other engine accessories
3. perform vehicle safety inspections as required by state and federal laws.
4. diagnose equipment failure, isolate faulty systems or components and make necessary adjustments or repairs.
5. interpret blueprints and wiring diagrams; test starting, charging, lighting and accessory systems; make adjustments and repairs to vehicles and engines; apply basic knowledge of air conditioning.
6. use mathematics, blueprints, diagrams and theory in the diesel and trucking trade.
7. write clear, concise and accurate abstracts and reports and converse intelligently with others.
8. demonstrate and practice safety habits—as required by the trade and by OSHA—at all times.
9. list, define and correctly use diesel technology terminology.
10. demonstrate the correct use of basic hand tools, special tools and required testing equipment.
11. demonstrate clear, concise writing ability in composing letters, shop orders and technical reports.
12. evaluate consumer needs and relate them to business procedures currently used in the trade.
13. demonstrate the ability to apply modern decision making techniques and the potential for managerial growth.
14. identify the need for physical fitness and positive leisure activities.

DIETETIC TECHNICIAN (DT)

Associate Degree/2 years

The Dietetic Technician program emphasizes food production, patient nutritional care and dietary administration in health care and other institutions. Classroom work and practical experience stress the normal and therapeutic needs of humans, food production, planning and sanitation, management skills and accounting. This program includes 450 hours of clinical experiences. (Students will need to plan for transportation to clinic sites during their second year in the program.)

Types of Jobs: Directors of dietary departments for nursing homes or school cafeterias; middle managers in hospital dietary departments. Responsibilities include supervision of production and tray service to patients. Assist dietitians in patient contact, nutritional status and care data, as well as employee supervision and training. May also be employed in middle management in commercial quantity food production.

Recommended High School Courses: One unit of high school biology or chemistry, and high school math.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
FHD	113	Field Experience in Management Systems I (2nd 8 weeks)	1
FHD	114	Introduction to Food Service Administration and Medical Care Organization	2
FHD	115	Purchasing, Storage & Sanitation	3
BIO	110	Applied Human Physiology	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	122	Diet Therapy with Dietetic Seminar	3
FHD	123	Field Experience in Management Systems II	3
FHD	125	Menu Planning and Cost Control	3
ENL	111	English Composition I	3
PSY		Elective-Psychology	3
			18

SUMMER TERM

			Credits
FHD	250	Hospitality, Dietetic Work Experience (Management Systems III)	1

THIRD SEMESTER

			Credits
FHD	231	Field Experience in Management Systems IV	3
FHD	235	Personnel Management, Work Simplification	3
FHD	245	Equipment and Layouts	3
ACC	112	Accounting I	3
PED		Physical Education	1
		Elective*	3
			16

FOURTH SEMESTER

			Credits
FHD	234	Health Care Delivery Systems	3
FHD	242	Field Experience in Management Systems V	3
FHD	246	Hospitality Merchandising	
		or	3
FHD	241	Beverage Management & Catering	
ENL	121	English Composition II	
		or	3
ENL	202	Fundamentals of Speech	
SOC	111	Introduction to Sociology	3
			15

*Suggested Electives:
MTR 101 Medical Terminology I
CSC 118 Fundamentals of Computer Science
CHM 105 General Organic Chemistry

Co-op:
Summer (required)

PROGRAM OBJECTIVES

The general objective of the Dietetic Technician program is to prepare students for employment in medical care institutions in diet planning, kitchen supervision, and patient education. The program is designed to satisfy regulatory agency requirements for Dietetic Technicians. Graduates may also transfer to a baccalaureate degree program at a four-year college.

The Dietetic Technician graduate should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan, develop and manage work schedules, job descriptions, menu planning, purchasing, portion control, and patient tray and cafeteria service.
3. describe equipment available on the market, and plan its arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creativity and sound thinking in personnel evaluations and in solving management problems.
5. conform to professional standards in personal appearance and demonstrate appropriate attitudes.
6. describe the physiological effects of food in the human body.
7. demonstrate a responsible attitude toward the dietetic profession and the community.
8. demonstrate ability to communicate clearly, both verbally and in writing, with co-workers and patients.
9. understand financial and budgetary controls in health care institutions.
10. assist in dietary record keeping.
11. demonstrate knowledge of the responsibilities of a dietitian; identify areas in which he/she may be of help and areas in which he/she should ask for assistance.
12. apply knowledge of physical activities and sports in maintaining good health.

ELECTRICAL OCCUPATIONS (EO)

Certificate/2 years

This program offers the skills and theoretical background needed for a variety of careers. Graduates may work as electricians in electrical construction or in electrical maintenance — where they would work with electrical machinery. They will also be qualified to develop the circuitry used to install and troubleshoot electrical and electronic machine controlled equipment and systems. The program emphasizes electrical and electronic basics and the development of skills through laboratory practice. Courses in math, science and the humanities improve students' employment prospects.

Types of Jobs: Industrial maintenance, electrical troubleshooter, power company employee, construction union apprentice, electrical tester or inspector; self-employment in residential and commercial wiring.

FIRST SEMESTER

			Credits
ELC	711	Direct Current Fundamentals	6
ELC	712	Basic Wiring Lab	3
ELC	715	Motor Maintenance and Repair	3
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			18

SECOND SEMESTER

			Credits
ELC	721	Basic Motor Control	4
ELC	722	Alternating Current Fundamentals	6
ELC	726	Residential Blueprints	3
ELT	113	Accident Prevention	2
MTH	500	Technical Mathematics II	3
			18

THIRD SEMESTER

			Credits
ELC	832	Advanced Motor Control	3
ELC	833	Basic Electrical Construction Lab	3
ELC	834	Basic Electronics for Industry	6
ELC	835	Commercial, Industrial Blueprints and Equipment	2
EDT	102	Engineering Drafting	2
		Optional Elective	0/3
			16/19

FOURTH SEMESTER

			Credits
ELC	845	Advanced Electrical Construction	3
ELC	847	Programmable Control	4
ELC	848	Electrical Machinery Analysis	4
ELC	849	Industrial Control	4
PHS	500	Physics Survey	3
			18

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

This program prepares graduates for jobs in residential, commercial or industrial electrical construction and maintenance.

A graduate of Electrical Occupations should be able to:

1. demonstrate technical skills in a variety of electrical fields, apply accepted safety standards and meet work quality standards.
2. demonstrate knowledge in electrical theory, mathematics and physics and apply this knowledge in the construction and operation of electrical systems.
3. use and care for electrical tools and materials and demonstrate the ability to requisition these items from a stockroom or supplier.
4. read and develop blueprints and use this information in performing installations which comply with the National Electrical Code.
5. interpret ideas and develop plans through communicating with others.
6. operate, maintain and repair rotating electrical machines.
7. demonstrate working knowledge of electrical construction procedures in residential, commercial, and industrial installations.
8. demonstrate the use of troubleshooting equipment and standard testing procedures.
9. set up ladder relay logic systems and convert them to electronic programmable control systems.
10. operate and maintain electrical and electronic programmable control systems.
11. demonstrate knowledge of basic electronic control circuitry, devices, and schematic diagrams.

ELECTRICAL TECHNOLOGY (EL)

Associate Degree/2 years

This program prepares students for entry-level jobs in industry as electrical technicians. Students develop the practical skills needed to work with electrical machinery, electric and electronic machine control devices and other electronic equipment. The program emphasizes electrical and electronic basics and includes theory and lab experience in circuitry, industrial electronics, electrical machinery and electrical construction practices.

Types of Jobs: Electrical engineering technologist, electrical laboratory technician, industrial maintenance, electronic apparatus troubleshooter, field service technician.
Recommended High School Subjects Two years of algebra, one year of science. It is strongly recommended that any mathematics deficiencies be corrected prior to entering the program.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ELT	111	Direct Current Fundamentals	5
ELT	112	Basic Wiring Lab	3
ELT	113	Accident Prevention	2
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
ELT	122	Alternating Current Fundamentals	5
ELT	124	Electrical Blueprint Reading/ National Electrical Code	4
ELT	125	Basic Electrical Construction Lab	3
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
			18

THIRD SEMESTER

			Credits
ELT	233	Basic Electronics	6
ELT	234	Electrical Motor Control	4
PHS	100	Physics-Mechanics	4
PED		Physical Education	1
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
ELT	241	Electrical Systems Analysis	2
ELT	244	Advanced Electrical Theory	3
ELT	245	Introduction to Programmable Logic Control	4
ECO	201	Principles of Economics	3
PHS	101	Physics-Heat and Light	4
			16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

This program equips students with the skills needed to understand and apply electrical technology theory. The program includes practical skills and theoretical aspects of the trade. Graduates will also have the background needed to transfer to a four-year program.

Upon completion of the program, the graduate should be able to:

1. demonstrate technical skills in a variety of electrical fields, apply skills related to recent developments in the field and apply accepted safety standards.
2. demonstrate the ability to use algebra, trigonometry, and physics in the design, development, and analysis of electrical and electronic circuits and systems.
3. complete parts lists and order forms which demonstrate knowledge of catalogs and of the coding and numbering of components, devices, hardware, and materials.
4. interpret and develop blueprints, schematic diagrams, and wiring diagrams, and transform them into functioning systems that comply with the National Electrical Code and/or other specs.
5. evaluate electrical and electronic circuits and systems, and communicate the results of the evaluation verbally and/or in writing to others in or out of the field.
6. demonstrate basic knowledge of construction procedures and electrical wiring techniques.
7. demonstrate knowledge of test equipment, instrumentation, and electrical/electronic theory, including complex numbers and the network theorems used to analyze, troubleshoot, repair, and operate electrical/electronic circuits, systems, and equipment.
8. demonstrate knowledge of the theory and mechanics of rotating machinery, programmable logic control circuitry, transformer banks, and instrumentation.
9. demonstrate the ability to make effective decisions and understand the functions of competition and the need for personal growth.
10. describe United States business cycles, investments, and personnel policies and procedures and their relationship to the electrical industry.
11. recognize the need for physical fitness and lifelong recreational activities.

ELECTRONICS TECHNOLOGY (ET)

Associate Degree/2 years

This program prepares students for technician level positions in a wide range of electronics based industries. Students learn to use "industry-standard" test equipment through practical laboratory work. The program gives students a broad theoretical and practical background in analog and digital electronic circuits and systems.

Types of Jobs: Electronics engineering technician, electronic lab technician, instrumentation technician, field service technician, technical writer.
Recommended High School Subjects: Two years of algebra, one year of science. We strongly recommend that any mathematics deficiencies be corrected prior to entering program.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ENT	111	DC - AC Theory	5
ENT	115	Electronics Laboratory I	3
ENT	116	Introduction to Solid-State Devices	3
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
			17

SECOND SEMESTER

			Credits
ENT	125	Intermediate Solid State Devices and Circuits	5
ENT	126	Electronics Laboratory II	3
ENT	127	Introduction to Digital Electronics	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MTH	104	College Algebra & Trigonometry II	3
			17

THIRD SEMESTER

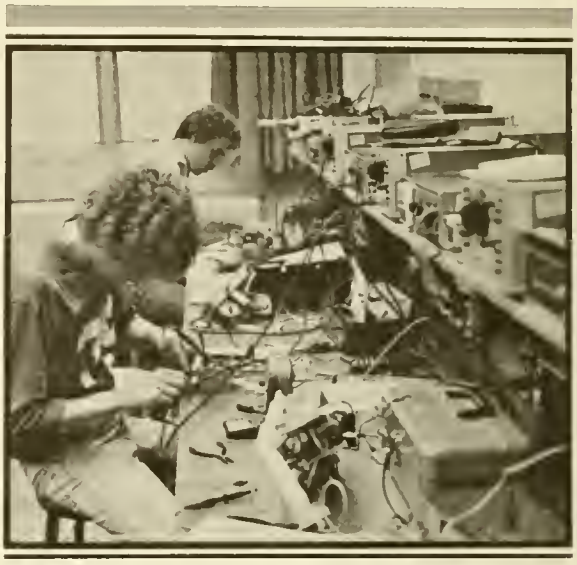
			Credits
ENT	233	Communication Circuits and Systems	5
ENT	237	Electronics Laboratory III	3
ENT	238	Intermediate Digital Electronics	3
PED		Physical Education	1
		Elective - Math/Science	
		or	3/4
		Elective - Computer Science	
			15/16

FOURTH SEMESTER

			Credits
ENT	246	Introduction to Microprocessors	5
ENT	247	Electronics Laboratory IV	3
PED		Physical Education	1
		Elective - Electronics**	3
		Elective - General*	3/4
			15/16

**Electives - Electronics – Only one may be offered in any given year: ENT 248, Advanced Circuit Analysis, ENT 241, Calibration and Standardization.

Co-op Options:
Parallel
Summer



PROGRAM OBJECTIVES

The overall goal of the Electronics Technology program is to prepare students for electronic technician jobs in electronics and related industries.

A graduate should be able to:

1. apply working knowledge of AC and DC circuits.
2. demonstrate basic knowledge of solid state devices.
3. describe the theory of various electronic communication systems.
4. analyze circuits containing various types of electronic devices.
5. demonstrate basic knowledge of digital electronics, logic circuits, and microprocessors.
6. solve math problems related to circuit analysis, digital electronics and other systems.
7. communicate verbally and write technical reports.
8. operate laboratory type cathode ray oscilloscopes.
9. operate parameter measuring equipment and signal generating equipment.
10. program microprocessor based systems and interface peripheral devices.
11. establish good working relationships with co-workers and good social relationships.
12. apply knowledge of physical activities for the maintenance of good health.
13. describe contributions of our cultural heritage and demonstrate the qualities of good citizenship.

ENGINEERING DRAFTING TECHNOLOGY (ED)

Associate Degree/2 years

This program trains students to make a variety of engineering drawings and calculations. It provides a broad knowledge of mechanical drafting and engineering procedures, and background skills in mathematics, science and communication.

Types of Jobs: Mechanical detail and layout drafting, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
EDT	108	Manufacturing Processes	3
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
EDT	231	Detail & Assembly Drawings (8 weeks)	4
EDT	232	Applied Drafting Techniques (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER

			Credits
EDT	241	Advanced Detail I (8 weeks)	4
EDT	242	Advanced Detail II (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the program is to train students in the skills needed for a variety of entry-level jobs in engineering drafting.

A graduate of this program should be able to:

1. apply the basic elements of drafting.
2. analyze and design simple power transmission installations.
3. make detail and assembly drawings.
4. detail casting drawings from sketches and models.
5. redesign castings into weldment drawings.
6. draw the various methods of piping.
7. detail assembly and sub-assembly drawings from layouts.
8. describe and apply various methods of manufacturing related to engineering drafting.
9. describe and apply principles of physics and metallurgy to engineering drafting.
10. use the mathematical skills needed to solve applied problems in engineering drafting.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. participate as an informed citizen in a democratic society based on values acquired through exposure to the humanities and social sciences.
13. develop fundamental skills in a lifetime sport.
14. demonstrate fundamental skills and knowledge in the use of computer aided drafting (CAD) and computer aided manufacturing (CAM).
15. perform basic drawing functions on computer aided design equipment.

FLORICULTURE (FL)

Associate Degree/2 years

This program prepares graduates for exciting jobs in the rapidly expanding industry of growing and marketing floral products. Production of greenhouse crops, designing and merchandising flower shop arrangements and interior plantscaping are covered in detail.

Types of Jobs: Greenhouse plant production; floral design; flower sales; flower shop management; interior plantscaping; starting your own business.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	500	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
FLR	121	Greenhouse Crop Production I	3
FLR	122	Floral Design I	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
FLR	232	Greenhouse Crop Production II	3
FLR	233	Floral Design II	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
FLR	243	Greenhouse Crop Production III	3
FLR	244	Flower Shop Operation	3
FLR	245	House & Conservatory Plants	3
OHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The goal of the Floriculture program is to prepare students for employment or self-employment in the retail florist and greenhouse industry or related businesses.

A graduate of Floriculture should be able to:

1. relate basic knowledge of botany, chemistry, and horticulture soils to plant growth and culture.
2. identify the skills needed to organize thoughts and ideas and demonstrate the ability to communicate, verbally and in writing, in a manner that can be easily understood.
3. solve math problems related to the use of soil amendments, fertilizers, and plant growth control chemicals, and apply effective cost estimating, pricing, and record keeping techniques.
4. identify common trees and shrubs, ground covers, various annuals, biennials, and perennials by botanical and common names and describe the outstanding characteristics of each; summarize landscape, garden center, and greenhouse uses and cultural requirements of these plants.
5. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by asexual and sexual methods.
6. describe proper design and operation of greenhouse environmental systems, and evaluate their advantages and disadvantages in commercial production.
7. summarize and assess plant growth requirements for commercial production of greenhouse crops, and economically produce a crop from seed or cutting to harvest and sales.
8. prepare salable floral designs of fresh, dried, and silk flowers using design guidelines, working within the time and cost requirements of the retail florist industry.
9. outline the management requirements of a flower shop — including record keeping and employee/employer relations — and demonstrate skills in designing and selling the types of arrangements and accessories used for special occasions.
10. identify and describe the effect of insects, disease, and physiological problems on plants, develop plans to control these problems, and obtain the Pennsylvania Private Applicator's License.
11. demonstrate knowledge of the operation and repair of equipment and mechanical systems used in the floriculture industry.
12. demonstrate a responsible attitude in relationships with employers, fellow employees, and toward the world of work.
13. identify foliage plants commonly used indoors by botanical and common names, state distinguishing characteristics of each, and describe their use and culture in various indoor landscape areas.
14. demonstrate an appreciation of physical fitness and lifelong recreational activities.

FOOD & HOSPITALITY MANAGEMENT (FH)

Associate Degree/2 years

This program includes academic classroom study and practical laboratory work in business and personnel management, food preparation and supervision, and related subjects. Guest speakers, field trips, and directed community field work experiences expand students' learning experiences.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
FHD	115	Purchasing, Storage, and Sanitation	3
MGT	247	Small Business Management	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	125	Menu Planning and Cost Control	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
PSY	111	General Psychology	3
PED		Physical Education	1
		Elective-General*	3
			16

PRACTICUM—SUMMER TERM

			Credits
FHD	250	Hospitality, Dietetic Work Experience (Management Systems III)	1

THIRD SEMESTER

			Credits
MGT	248	Supervision and Human Relations	3
FHD	236	Hospitality Management and Theory	2
FHD	245	Equipment and Layouts	3
ACC	112	Accounting I	3
BIO	110	Human Physiology	
		or	3
		Elective-Science	
			14

FOURTH SEMESTER

			Credits
FHD	126	Front Office Management and Housekeeping**	3
FHD	241	Beverage Management and Catering	3
FHD	246	Hospitality Merchandising	3
MGT	230	Business Communication	3
		Elective-General*	3
			15

**Students may take FHD 122, Diet Therapy, or FHD 201, Advanced Quantity Foods, in place of FHD 126, Front Office Management and Housekeeping.

Co-op:
Summer (required)

PROGRAM OBJECTIVES

The general objective of the Food and Hospitality Management program is to prepare students for food service management jobs in restaurants, schools, institutions, and catering operations. Options within the program allow students to prepare for employment in front office and housekeeping positions in hotels and motels. Graduates may also transfer to a baccalaureate program at a four-year college.

Upon completion of the program, the student should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan, develop and manage work schedules, job descriptions, menu planning, purchasing, portion control, and dining room and cafeteria service.
3. describe the equipment available on the market and plan its arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creativity and sound thinking in solving management problems and in merchandising techniques.
5. conform to professional standards in personal appearance and demonstrate appropriate attitudes.
6. describe the physiological effects of food in the human body.
7. demonstrate a responsible attitude toward the dietetic profession and the community.
8. communicate clearly, both verbally and in writing.
9. demonstrate the ability to keep accurate food business records and understand the relationship between financial profits and good business ethics.
10. plan and cater events; apply knowledge of all types of beverages.
11. demonstrate working knowledge of the factors involved in establishing and operating a small business in the United States.
12. demonstrate working knowledge of front office practice and housekeeping procedures (students who select the lodging option).
13. apply knowledge of physical activities and sports in maintaining good health.

FOREST TECHNOLOGY (FR)

Associate Degree/2 years

This program covers basic forestry techniques with an emphasis on outdoor learning and practical hands-on experiences. It includes both academic and specialized forestry courses to prepare students for a variety of jobs in industry.

Types of Jobs: In public agencies – Forest fire control; wildlife habitat improvement; maintenance of forest roads, structures, and recreation areas; timber estimation; timber marking; stand improvement.
In private employment – Pulpwood procurement; timber estimating; planning and construction of forest roads; supervision of logging operations; location and survey of forest property lines.
Recommended High School Subjects: Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FOR	111	Dendrology	3
FOR	113	Forest Mensuration	3
FOR	115	Forest Botany	3
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FOR	121	Photogrammetry & Forest Surveying I	3
FOR	124	Advanced Forest Mensuration	3
FOR	126	Forest Ecology/Wildlife Management	3
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
FOR	232	Forest Surveying II	3
FOR	233	Equipment and Machinery	3
FOR	234	Timber Harvesting	3
FOR	236	Silviculture	3
MGT	110	Principles of Business	3
			15

FOURTH SEMESTER

			Credits
FOR	242	Forest Products	3
FOR	247	Forest Land Management & Recreation	3
FOR	248	Forest Protection	3
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Forest Technology program is to prepare students for jobs as forest technicians in public and private sectors of forestry and in related fields.

The graduate of the Forest Technology program should be able to:

1. write clear, grammatically correct and accurate technical reports and demonstrate skills in verbal communication.
2. identify selected species of trees and shrubs by their scientific and common names, general uses, site characteristics and geographic distribution.
3. apply the fundamentals of plane surveying — including the use and care of surveying equipment, maps and map making, and the theory of measurements.
4. measure the volume of standing timber and the volume of products removed from the forest.
5. prepare a forest land management plan for a property using the concepts of multiple use and sustained yield forest management.
6. demonstrate knowledge of the silvicultural treatments used to regulate stand composition, regenerate stands, increase growth rates and improve timber quality.
7. apply the basic theories, principles, and techniques used in timber harvesting and demonstrate skills in the operation and maintenance of tools and equipment used to harvest a forest crop.
8. analyze the relationship between humans, other organisms, and the forest environment.
9. describe the life history, food requirements, and distribution of the major game and non-game birds and mammals of Pennsylvania.
10. identify and describe the function of tree parts and of selected plants and describe their relation to soil.
11. describe the processing operations related to various forest products and the properties and uses of these products; identify and describe the characteristics and structure of wood.
12. describe the characteristics and control of various forest pests, diseases, and fire problems.
13. use the appropriate math skills to solve applied problems in the field of forestry.
14. develop fundamental skills in lifetime sports.
15. demonstrate responsible attitudes needed for successful relationships with employers, fellow employees, and the world of work.

GRAPHIC ARTS (GA)

Associate Degree/2 years

This program provides practical skills in the graphic arts together with management, marketing, and supervisory training. Laboratory and shop work on modern graphic arts equipment develops students' skills in typesetting, pasting up mechanicals, and in camera, press and bindery operations.

Types of Jobs: Graphic arts executive training, in-plant supervisors, self-employed printer, marketing and technical sales service.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
GCO	511	Layout and Design	4
GCO	512	Typographic Composition	4
ENL	111	English Composition I	3
SEC	509	Typewriting	1
MTH		Elective-Math*	3
PEO		Physical Education	1
			16

SECOND SEMESTER

			Credits
GCO	521	Process Camera	4
GCO	522	Film Assembly & Imposition	4
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MGT	247	Small Business Management	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
GCO	631	Platemaking, Substrates & Finishing	4
GCO	632	Press Operations	4
GCO	635	Printing Estimating Practices	3
CHM	299	Chemistry of Lithography	3
		Elective	3
			17

FOURTH SEMESTER

			Credits
GCO	641	Advanced Typographic Composition	3
GCO	642	Advanced Process Camera and Stripping	3
GCO	645	Printing Processes	3
CSC	118	Fundamentals of Computer Science	3
		Elective	3
			15

ELECTIVES should be selected from 100 and 200-level courses outside the program of study.

*MTH 101 Introduction to Mathematics I, MTH 102 Introduction to Mathematics II, MTH 103 College Algebra & Trigonometry I, MTH 104 College Algebra & Trigonometry II

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to prepare students for employment in the graphic arts and printing industry. Related courses and electives improve students' advancement potential and prepare graduates for additional education leading to a baccalaureate degree.

A graduate of the Graphic Arts program should be able to:

1. recognize the major printing processes, their products, and the advantages of each process.
2. demonstrate the skills needed for entry level jobs (as advanced trainees) in the following areas: layout and design, copy preparation and typesetting, stripping (setting up camera negatives for printing), platemaking (transferring the copy to be printed onto a metal plate for use on a printing press), presswork and finishing operations (collating, binding, cutting, etc.).
3. use technical knowledge of the above processes to make effective job-related decisions.
4. evaluate his/her abilities and limitations in various areas of the graphic arts.
5. demonstrate good work habits: promptness, willingness to work, and the ability to accept supervision.
6. demonstrate knowledge of graphic arts equipment and use appropriate safety precautions when working around such equipment.
7. compare production departments (typesetting and layout, camera, press and bindery) and the contributions each makes to the printed product.
8. identify the problems of owning and operating a business.
9. describe basic chemistry principles and apply them to graphic arts.
10. solve basic mathematical problems related to graphic arts.
11. write clear, concise, legible, and accurate technical reports using standard English.
12. demonstrate skills in verbal communication and speak logically using various types of verbal communication techniques.
13. demonstrate knowledge of the rules and techniques of a lifetime sport which will provide recreation and promote physical fitness.

HUMAN SERVICE (HS)

Associate Degree/2 years

The Human Service program trains students to provide general helping, supportive and preventive services for people with emotional, developmental, social or physical problems. Students develop skills in counseling, crisis intervention, group work and case management. Students apply these general skills in analyzing specific types of agencies and through internships in the field.

Types of Jobs: Entry-level positions in youth and aging programs, senior citizen centers, drug and alcohol counseling programs, child care development agencies, correctional facilities and other agencies. Graduates may also transfer to many four-year programs in social work, sociology, psychology or related fields.

FIRST SEMESTER

			Credits
HSR	111	Introduction to Human Service	3
PSY	111	General Psychology	3
SOC	111	Introduction to Sociology	3
ENL	111	English Composition I	3
BIO	110	Applied Human Physiology	3
			15

SECOND SEMESTER

			Credits
HSR	121	Helping Process and Crisis Intervention	3
HSR		Human Service Seminar I*	3
PSY	201	Abnormal Psychology	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
GOV	241	State and Local Government	3
PED		Physical Education Elective	2
			17

THIRD SEMESTER

			Credits
HSR	125	Fundamentals of Counseling	3
HSR	251	Human Service Practicum I**	3
HSR		Human Service Seminar II*	3
SOC	231	Marriage and the Family	3
MTH	101	Introduction to Mathematics I	3
			15

FOURTH SEMESTER

			Credits
HSR	240	Management and Administration in Human Services	3
HSR	252	Human Service Practicum II**	3
PSY	203	Developmental Psychology	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	201	Elementary Statistics I	
		Elective	3
			15

*Seminar courses will include courses numbered HSR 260 - HSR 279.

**Cooperative Education Practicum credits may be scheduled over the summer, reducing the course load during the third and fourth semesters.

PROGRAM OBJECTIVES

The general objective of the Human Service program is to train students as generalists in the helping professions. Graduates are also prepared for advanced study in social and human service fields.

Graduates of the Human Service program will be able to:

1. provide generic therapeutic, supportive and preventive services for people with emotional, developmental, social or physical problems in a variety of social or human service settings.
2. demonstrate knowledge of social and human service delivery systems and their role within the local and national community.
3. identify and link clients with resources and services provided by local human service agencies.
4. apply systematic procedures to identify problems.
5. provide basic individual and group counseling techniques to address identified problems.
6. serve as a client advocate, facilitating movement of clients through social service systems, within a variety of agency settings.
7. contribute to developing systematic programs for personal change.
8. maintain progress and case notes and write objective, accurate reports.
9. communicate effectively in both writing and speech.
10. listen actively to clients, colleagues and the community.
11. apply mathematical skills to reports, agency budgets, and statistical interpretations.
12. apply principles of psychology, sociology and biology to human issues.
13. understand and respect cultural differences which affect behavior and beliefs.
14. contribute to effective agency planning, budgeting and management.
15. understand the interrelation of physical, social and mental well being, and apply this knowledge.

INDUSTRIAL DRAFTING (MD)

Certificate/2 years

This program emphasizes the development of drafting skills to prepare students for entry-level jobs in industry. Students will also study related manufacturing processes to improve their understanding of the industrial process and the need for accuracy in drafting.

Types of Jobs: Mechanical, sheet metal, piping, civil, structural, architectural or electrical drafting; possible advancement opportunities include related jobs such as estimator or field erection supervisor.

FIRST SEMESTER

			Credits
IND	714	Basic Drafting (8 weeks)	5
IND	715	Machine Drafting (8 weeks)	5
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			16

SECOND SEMESTER

			Credits
IND	724	Gears, Cams, Mechanisms (8 weeks)	5
IND	725	Sheet Metal and Piping (8 weeks)	5
EDT	108	Manufacturing Processes	3
MTH	500	Technical Mathematics II	3
			16

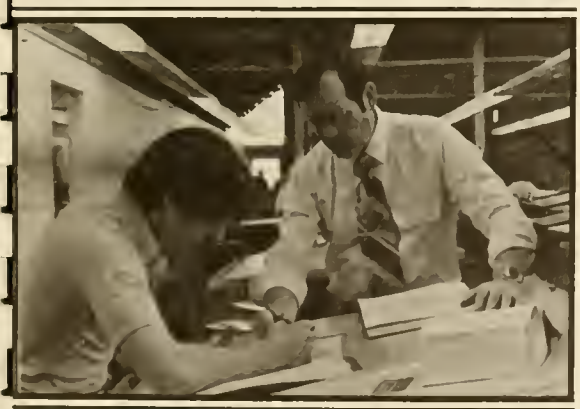
THIRD SEMESTER

			Credits
IND	834	Civil Drafting (8 weeks)	5
IND	835	Structural Drafting (8 weeks)	5
PHS	500	Physics Survey	3
		Elective	3
			16

FOURTH SEMESTER

			Credits
IND	844	Architectural Drafting (8 weeks)	5
IND	845	Electrical and Electronic Drafting (8 weeks)	5
		Elective	3
			13

Co-op Options:
Parallel
Summer



PROGRAM OBJECTIVES

The general objective of this program is to prepare students for drafting jobs in industry. Students develop skills in a variety of drafting techniques and take basic academic courses to prepare them for entry-level jobs and for advancement in their field.

A graduate from this program should be able to:

1. draw designs and details using drawing instruments.
2. draft detailed working drawings of machinery and mechanical devices.
3. indicate dimensions and tolerances, fasteners and joining requirements.
4. draw multiple-view assembly drawings required for the manufacture and repair of mechanisms.
   a. make detail drawings of gears and cams.
   b. select power transmission parts from manufacturer's catalogs.
5. draw plans and details for structures using structural reinforcing steel, concrete, masonry, and other structural materials.
6. prepare plans and details of foundations, building frames, floor and roof framing and other structural elements.
7. draw electrical equipment, working drawings and wiring diagrams used by construction crews and repairpersons who install electrical equipment and wiring in power plants, communications centers, industrial establishments, stores, homes, and electrical distribution centers.
8. draw architectural and structural features of buildings and other structures.
9. calculate quality, quantity, strength, and total cost of materials; assure that the planned structure will meet building codes.
10. prepare complete, accurate scale drawings of sheet metal parts and equipment used in the construction and repair of material conveyance equipment.
11. draw piping plans and elevations with ability to estimate and draw "takeoffs" from setting plans of boilers and processing plants.
12. use civil engineer's field notes showing metes and bounds, cross sections, and cuts and fills to prepare drawings.
13. apply engineering data to drawings using mathematical calculations and basic laws of physics.
14. write accurate technical reports using standard English.
15. demonstrate a responsible attitude toward mechanical drafting and a cooperative spirit toward each person associated with this work.
16. demonstrate fundamental skills and knowledge in the use of computer aided drafting (CAD) and computer aided manufacturing (CAM).
17. perform basic drawing functions on computer aided design equipment.

JOURNALISM (JO)

Associate Degree/2 years

Practical courses in news and feature article writing, public relations, law and the mass media, copy editing, media photography, media management and community responsibility offer students a well-rounded foundation in journalism. Essential related studies in government, economics, sociology, psychology and specific areas of English are included. The program prepares students for a variety of entry-level jobs in journalism and related fields or for transfer to a four-year program in communications.

Types of Jobs: Newspaper reporter, newspaper research assistant, news photographer, editorial assistant, advertising copywriter, advertising photographer, advertising layout assistant, public relations assistant, public relations photographer, magazine researcher, production person.

Recommended High School Subjects: To succeed in this program, students should have completed the following sequences in high school: English, including grammar, composition, and literature; social studies and/or history, and basic mathematics. Successful completion of high school journalism or participation in the production of a high school publication will contribute to the student's success at the college level.

FIRST SEMESTER

			Credits
JOU	111	News Writing	3
JOU	114	Mass Media Photography	3
MCM	111	Introduction to Mass Communications	3
ENL	111	English Composition I	3
SEC	509	Typewriting or passing score on typing test	1
GOV	231	American Government - National	3
			16

SECOND SEMESTER

			Credits
JOU	121	Reporting Public Affairs	3
JOU	122	Introduction to Newspaper Production	2
MCM	122	Media and the Law	3
ENL	121	English Composition II	3
GOV	241	State and Local Government	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
JOU	231	Feature Writing	3
JOU	232	Copyreading and Editing	3
JOU	233	Newspaper Management and Production	2
ECO	201	Principles of Economics	3
ENL	202	Fundamentals of Speech	3
PED		Physical Education	1
			15

FOURTH SEMESTER

			Credits
JOU	244	Publication Management*	2
MCM	242	Media Management & Community Responsibility	3
MCM	243	Public Relations	3
ADV	101	Advertising	3
PSY	111	General Psychology or	3
SOC	111	Introduction to Sociology	
		Math or Science Elective**	3
			17

*Cooperative Education experience approved by the Division Director may be substituted.

**100 or 200-level course in biology, chemistry, environmental science, geography, geology, mathematics, or physics.

PROGRAM OBJECTIVES

The general objective of the Journalism program is to prepare students for employment in small or mid-size organizations in journalism and related fields.

Graduates of the Journalism program will be able to:

1. evaluate their role as individual citizens in a community as well as their unique importance as trained mass media persons with the potential to influence the lives of others in the community.
2. analyze the responsibilities of the mass media in the United States.
3. state ethical canons and governmental regulations or laws which govern the production of mass media; correlate personal responsibility and those laws and canons.
4. distinguish the philosophical and practical standards and goals of various forms of mass media.
5. explain examples of the impact of mass media upon the history of the United States and upon society.
6. use modern mass media copy production systems such as video display terminals.
7. interview, research, and otherwise gather information needed to write specialized material—including basic news stories, feature stories, in-depth reports, reviews, public relations news releases and comprehensive reports, such as annual reports—for mass media publication.
8. list the interrelationships between mass media and various types of communities, i.e., geographic, company, etc.
9. produce basic photographic assignments for use in various forms of mass media, as well as in public relations media.
10. differentiate, by statement or example, among the types of photographs used for news, advertising, internal public relations, external public relations, and formal reports.
11. list differences in objectives and techniques of writing for various forms of mass media, including newspapers, magazines, annual reports, trade journals, house organs, etc.
12. coordinate, organize and produce examples of club bulletins, house organs, employee newsletters and similar small publications.
13. produce preliminary advertising copy and layouts for small publications or a small advertising agency.
14. list individual goals of and delineate differences among various forms of writing—including the objective, the subjective, biased, persuasive and propagandized.
15. explain the relationship among various forms of mass media in terms of philosophical goals balanced by consideration of business practices.
16. delineate the roles of individuals in the organizational structure of various forms of mass media; provide examples demonstrating the interrelationships of those individuals.
17. state and provide examples of effective management practices peculiar to various forms of mass media.

MACHINE TOOL TECHNOLOGY (TT)

Associate Degree/2 years

This program prepares students to work with engineers and shop superintendents. Students develop skills in machine operation and theory, blueprint reading and mechanical drawing in the program's labs and shops. Training in job routing and the order in which operations are performed is included. In the third semester the emphasis is on CNC—computer numerical control—systems and computer part programming capabilities. The program includes discussions of such topics as robotics, graphics, group technology, future trends, and numerical control terms, definitions and standards. Related courses in mathematics, science and physics improve students' advancement potential.

Types of Jobs: Toolmaker; experimental numerical controller; production technician; administrative assistant.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
MTT	511	Machining I (8 weeks)	5
MTT	512	Machining II (8 weeks)	5
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
MTT	521	Automatic Machines (8 weeks)	5
MTT	522	Industrial Metrology (8 weeks)	5
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
			16

THIRD SEMESTER

			Credits
MTT	631	Tooling Technology I (8 weeks)	5
MTT	632	Tooling Technology II (8 weeks)	5
PHS	100	Physics-Mechanics	4
EDT	101	Mechanical Drawing	2
			16

FOURTH SEMESTER

			Credits
MTT	641	Abrasive Machining (8 weeks)	5
MTT	642	Heat Treatment and Cutter Grinding (8 weeks)	5
PHS	106	Introduction to Metallurgy	4
PED		Physical Education	1
			15

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The overall objective is to prepare students for jobs in the machine tool industry.

A graduate of the Machine Tool Technology program should be able to:

1. demonstrate safe work habits and be conscious of safety when working with machinery.
2. read blueprints, interpret drawings, understand specifications, and establish tolerances.
3. apply mathematics in the machine tool trade (speeds, feeds, thread measurement, sinebar, etc.).
4. apply the principles of physics and metallurgy to the science of heat treatment operations including:
   a. hardening of steel
   b. carburizing
   c. case hardening
   d. tempering
   e. annealing
5. operate basic machine tools and demonstrate knowledge of their construction in relation to the metal industry.
6. describe the construction and operation of production machinery, including turret lathes, screw machines, automatic tappers, etc.
7. demonstrate skills on numerical control machine, electrical discharge machine, electrical chemical grinder, digital readout, diemaking, jig grinding, jigs and fixtures.
8. operate abrasive cutting machinery and select and plan machining operations on this equipment.
9. demonstrate skills in quality control, inspection, gaging methods, and production control as they relate to manufacturing design and production.
10. demonstrate basic verbal communication skills, speak logically, and use various types of verbal and written communication techniques to promote good business relationships, to develop leadership, and to establish good employer-employee-customer relationships.
11. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

MACHINIST GENERAL (MG)

Certificate/2 years

This program offers training on machine tools commonly used in most shops. It emphasizes practical machine skills. Classroom analysis of various jobs and machine operations increases the student's capabilities as a machinist. General mathematics, science, and communications skills are included to prepare students to work with technical advances in the machining industry.

Types of Jobs: Machinist, machine repair mechanic, setup person for production line work, skilled toolroom mechanic, technical sales, manufacturing supervision, or machine shop ownership.

FIRST SEMESTER

			Credits
MTT	511	Machining I (8 weeks)	5
MTT	512	Machining II (8 weeks)	5
MTH	710	Technical Mathematics I	3
			13

SECOND SEMESTER

			Credits
MTT	521	Automatic Machines (8 weeks)	5
MTT	522	Industrial Metrology (8 weeks)	5
MTH	500	Technical Mathematics II	3
		Elective	3
			16

THIRD SEMESTER

			Credits
MTT	631	Tooling Technology I (8 weeks)	5
MTT	632	Tooling Technology II (8 weeks)	5
PHS	500	Physics Survey	3
ENL	711	Communications	3
			16

FOURTH SEMESTER

			Credits
MTT	641	Abrasive Machining (8 weeks)	5
MTT	642	Heat Treatment and Cutter Grinding (8 weeks)	5
EDT	101	Mechanical Drawing	2
		Elective or Approved Co-op	3
			15

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The overall objective of this program is to prepare students for jobs in the machining industry.

A graduate of the Machinist General program should be able to:

1. demonstrate safe work habits and be conscious of safety when operating machine tools and equipment.
2. demonstrate working knowledge of blueprint reading; work from sketches of parts.
3. develop and use mathematical formulas to compute coordinates and solve gearing and threading problems.
4. apply basic knowledge of physics-mechanics to machine tool problems such as power transmission, machining, etc.
5. operate and set up basic machine tools.
6. operate machine tools to produce gears, threads, and gages.
7. operate and set up numerically controlled machines, electrical discharge, and electrical chemical machines.
8. operate various types of abrasive cutting machines and practice heat treating of metals, for example, hardening, annealing, and carburizing.
9. prepare and revise technical papers used in operating machine tools and machining procedure.

MATHEMATICAL COMPUTER SCIENCE (MC)

Associate Degree/2 years

This program is designed to prepare students for transfer to four-year institutions as well as for entry-level positions in programming. Mathematical Computer Science emphasizes mathematics, problem solving skills, the theory of computing, how a computer works, and the structure of programming languages like Pascal, BASIC, FORTRAN and machine languages. See page 5 for special admission requirements for this program.

Types of Jobs: Systems programmer trainees or programmer trainees. Students who transfer and complete a Bachelor of Science degree in Computer Science would be qualified for positions as systems programmers and application programmers in engineering, science or mathematics.
Required High School Courses: Two years of algebra, one year of trigonometry, one year of a laboratory science, and three years of English.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	238	Calculus I	4
MCS	111	Theory of Programming I	4
ECO	201	Principles of Economics	3
		Elective - General Core*	3
			17

SECOND SEMESTER

			Credits
ENL	201	Technical Writing	3
MTH	248	Calculus II	4
MCS	121	Theory of Programming II	4
		Elective**	3
		Elective - Social Science/Humanities	3
PED		Physical Education	1
			18

THIRD SEMESTER

			Credits
MTH	203	Statistics with Computer Methods	3
MTH	237	Discrete Mathematics	3
MCS	201	Data Structures	4
PHS	116	General Physics I	
		or	4
CHM	111	General Chemistry I	
		Elective - General Core*	3
			17

FOURTH SEMESTER

			Credits
MTH	249	Linear Algebra	3
MCS	202	Machine Language Programming	4
PHS	126	General Physics II	
		or	4
CHM	121	General Chemistry II	
		Elective**	3
PED		Physical Education	1
			15

*See page 75 for a list of General Core subjects.

**It is recommended that these be used to develop depth in a technical area related to computer science or to facilitate transfer to a four-year institution. All electives must be approved by student's advisor.

PROGRAM OBJECTIVES

This program is designed to prepare students to successfully transfer—with full junior status—to computer science programs at four-year institutions.

A graduate of Mathematical Computer Science should be able to:

1. demonstrate an understanding of the theoretical concepts of discrete and continuous mathematics.
2. demonstrate the use of mathematical principles to solve problems through modeling and programming.
3. demonstrate an understanding of the structure of a computer system and the interaction of hardware and software.
4. demonstrate an understanding of structured programming.
5. demonstrate the ability to use step-wise refinement to analyze a problem and determine a computer solution that is logical, well-structured, and easy to understand and use.
6. demonstrate an understanding of the organization and structure of data.
7. demonstrate an understanding of the relationship between mathematics and computer science.
8. use the computer to solve a wide variety of problems taken from the realms of mathematics, science and business.
9. demonstrate the ability to apply the scientific method through experimentation in the natural sciences.
10. communicate clearly and concisely and use and produce written technical materials.
11. demonstrate a responsible attitude toward personal organization of time, work habits, and the creation of quality products.
12. appreciate sports and other leisure activities.
13. apply general knowledge of the social and natural sciences and understand their effect on our environment.
14. demonstrate the academic background necessary to transfer to a baccalaureate program in computer science.

NURSERY MANAGEMENT (NM)

Associate Degree/2 years

Nursery management offers rewarding careers to those who enjoy working in the outdoors. This program prepares students for the job opportunities available to college graduates in this growing industry. Students study nursery production, garden center sales, and landscape design, installation and maintenance. The operation of landscape and nursery equipment, and the construction of landscape features—including walks, walls and patios—are covered in labs.

Types of Jobs: Propagation and production of trees and shrubs in field or container nurseries; nursery stock buyer; agent or salesperson; garden center sales; horticulturist with a government agency (city, state, federal), landscaping, turfgrass installation and maintenance; starting your own business.

*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	500	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
NMG	121	Nursery Production I	3
NMG	126	Woody Plants II	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
NMG	232	Nursery Production II	3
NMG	237	Woody Plants III	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
NMG	245	Landscape Construction	3
NMG	248	Landscape Maintenance	3
NMG	249	Landscape Design	3
OHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The goal of Nursery Management is to prepare students for employment or self-employment in such jobs as growing nursery crops, retail and garden center sales, and landscape work.

A graduate of Nursery Management should be able to:

1. apply basic knowledge of botany, chemistry, and horticulture soils to plant growth and culture.
2. identify the skills needed to organize thoughts and ideas and communicate, verbally and in writing, in a manner that can be easily understood.
3. solve math problems related to the use of soil amendments, fertilizers, and plant growth control chemicals, and apply cost estimating, pricing, and record keeping techniques.
4. identify deciduous trees and shrubs, narrow and broad-leaved evergreens, cultivars, and varieties by botanical and common name and point out their distinguishing characteristics, landscape uses and applications.
5. identify various annuals, biennials, and perennial herbaceous plants, and summarize landscape, garden center, and greenhouse use and the growth requirements of these plants.
6. describe the various types of nurseries, nursery growing structures, related facilities, equipment, and handtools and define the proper location for and the design factors of nursery facilities.
7. demonstrate the ability to grow commercial plants in field and container operations on a scheduled production basis.
8. identify and describe the effect of insects, diseases, and physiological problems on plants, plan for proper control of these problems, and obtain the Pennsylvania Private Applicator's License.
9. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by sexual and asexual methods.
10. explain the proper and effective use of woody and herbaceous plant materials in developing public and domestic landscape areas.
11. create landscape features such as waterfalls, pools, steps, walks, walls, and patios using materials like flagstone, brick, railroad ties and mountain stone.
12. identify turfgrass varieties and uses, and demonstrate an understanding of the establishment and maintenance of turf areas.
13. apply skills in pruning, fertilizing, and spraying in maintaining existing landscapes, fruit trees and other fruit-bearing plants.
14. demonstrate knowledge of the operation and repair of equipment and mechanical systems used in the nursery industry.
15. demonstrate a responsible attitude in relationships with employers, fellow employees, and the world of work.
16. demonstrate an appreciation of physical fitness and lifelong recreational activities.

OUTDOOR POWER EQUIPMENT (SM)

Certificate/1 year

Outdoor Power Equipment prepares students to troubleshoot, service and repair power systems used in small engines and recreational vehicles. The program covers two and four-stroke cycle gasoline and small diesel engines. Students also learn to repair transmissions and drive systems commonly used in outdoor power equipment and recreational vehicles.

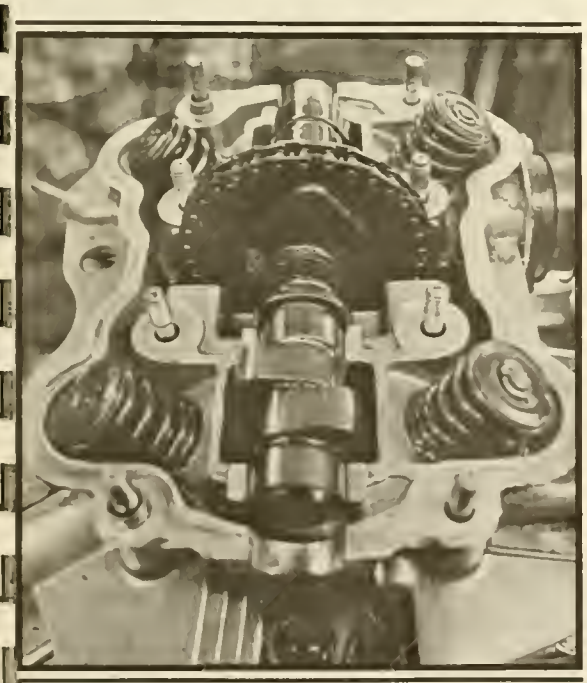
Types of Jobs: Motorcycle repairer (mechanic), motorcycle tester, engine repairer, gas engine repairer, power saw mechanic, small engine mechanic, outboard motor mechanic, outboard motor tester, lawnmower mechanic, factory service technician.

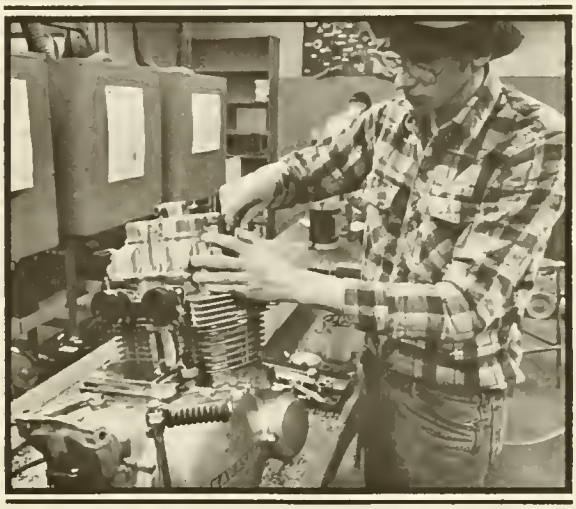
FIRST SEMESTER

			Credits
OPE	710	Small Engine Fundamentals (8 weeks)	5
OPE	711	Drive Units and Systems (8 weeks)	5
MTH	710	Technical Mathematics I	3
WEL	299	Welding Processes	3
			16

SECOND SEMESTER

			Credits
OPE	721	Operation, Repair and Maintenance (8 weeks)	5
OPE	722	Shop Operation and Customer Relations (8 weeks)	5
ENL	711	Communications	3
		Elective	3/4
			16/17





PROGRAM OBJECTIVES

The objective of this program is to prepare students for employment in the field of outdoor power equipment.

Graduates of Outdoor Power Equipment should be able to:

1. safely and correctly use and care for the tools of the trade.
2. explain the principles of operation of two and four-stroke cycle engines.
3. troubleshoot, repair and service most types of small engines.
4. repair and service most types of transmissions and drive systems common to outdoor power equipment and recreational vehicles.
5. operate and repair most types of outdoor power equipment and recreational vehicles.
6. read and use parts books and service manuals and understand their contents.
7. look and conduct themselves in a manner leading to positive employee-employer and employee-customer relations.
8. demonstrate the ability to manage or operate a repair shop using correct bookkeeping, inventory control and warranty procedures.
9. perform basic welding, cutting and brazing tasks using electric arc and oxyacetylene equipment.
10. write clear, concise, legible and accurate technical reports, warranty forms, shop repair orders, etc.
11. solve basic mathematical problems.

PLUMBING & HEATING (PL)

Certificate/2 years

This program includes the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. Students develop skills in all types of plumbing and heating repair work used in residential, institutional, and commercial applications. The program also provides training in the fundamentals of communication and mathematics.

Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and shipbuilding industries.

FIRST SEMESTER

			Credits
PLH	711	Basic Plumbing (First 8 weeks)	6
PLH	712	Advanced Plumbing Skills (Second 8 weeks)	6
BCT	254	Carpentry for the Trades	2
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
PLH	721	Plumbing Systems and Blueprints (First 8 weeks)	6
PLH	722	Advanced Systems and Codes (Second 8 weeks)	6
WEL	703	Electric Welding	2
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
PLH	833	Heat Loss Calculations - Pipe Welding (First 8 weeks)	7
PLH	832	Hot Water Heat - Heat Conservation (Second 8 weeks)	6
ELT	110	Electricity for the Trades	3
		Optional Elective	0/3
			16/19

FOURTH SEMESTER

			Credits
PLH	841	Steam Heat and Pipefitting (First 8 weeks)	6
PLH	842	Field Work and Advanced Skills (Second 8 weeks)	6
		Optional Elective	0/3
			12/15

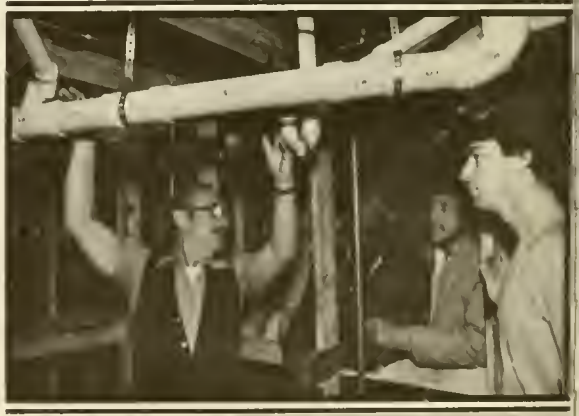
Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The goal of the Plumbing and Heating program is to prepare students for entry-level jobs in plumbing and heating.

A graduate of the Plumbing and Heating program should be able to:

1. demonstrate good work habits and meet accepted safety standards.
2. use hand and power tools of the trade.
3. identify piping materials and install them using proper connections.
4. use and apply trade terms and technical data.
5. read and interpret blueprints, specifications, and codes as they apply to the trade.
6. lay out, estimate, calculate, and use mathematical skills required in the trade.
7. install, maintain, and repair plumbing and heating mechanical systems and equipment and keep up with new developments in the field.
8. demonstrate the ability to write letters of application, memos, work orders, and reports, and apply communication skills on the job.
9. demonstrate welding skills required in plumbing and heating.
10. apply basic knowledge and skills of electrical work to install, repair, maintain, and troubleshoot electrical controls used in plumbing and heating.
11. identify the principles involved in the collection, storage and use of solar energy for space and domestic water heating.
12. apply energy conservation measures to plumbing and heating installations.



PRACTICAL NURSING (NU)

Certificate/52 weeks

Classroom instruction in theory and basic skills is offered at the College's central campus in Williamsport and at our North Campus in Wellsboro. Students enrolling at the Williamsport campus gain practical experience in patient care at The Williamsport Hospital, Divine Providence Hospital and at the Lysock View Home and Hospital. Wellsboro students acquire experience at Soldiers and Sailors Memorial Hospital and the Green Home.

Under the guidance of college faculty, students gain experience in the care of adult patients and in maternal and child health nursing at the cooperating hospitals and homes. The program includes instruction in mental health concepts, pharmacology and diet therapy. See page 5 for special admission requirements for this program.

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty.

FIRST SEMESTER-16 Weeks of 33 Hours Each

		Credits
NUR 710	Foundations of Nursing	12
NUR 711	Nursing Relationships	3
NUR 712	Scientific Principles Relating to Nursing	6
		21

SECOND SEMESTER-15 Weeks of 30 Hours Each

		Credits
NUR 723	Medical-Surgical Nursing—Elementary*	9
NUR 724	Parental and Child Health**	9
		18

THIRD SEMESTER-15 Weeks of 30 Hours Each

		Credits
NUR 735	Medical-Surgical Nursing—Intermediate	18
		18

PRACTICUM-3 Weeks of 25 Hours Each

NUR 736	Practicum	2
		2

Theory—600 Hours 2/5 Ratio
Practicum—903 Hours 3/5 Ratio
Total—1,503 Hours

VACATION-3 Weeks

*NUR 723-15 wks lecture/7 wks lab
**NUR 724-15 wks lecture/8 wks lab

NOTE: A curriculum change for the Practical Nursing program is currently before the State Board of Nurse Examiners. For more information, contact the Coordinator of Practical Nursing at (717) 326-3761, ext. 324.

PROGRAM OBJECTIVES

A graduate of the Practical Nursing program will be able to share in the care of the sick, in rehabilitation therapy and in the prevention of illness — always under the direction of a licensed physician and/or registered professional nurse. The fundamental objective of the program is to prepare students to meet practical nursing licensing requirements.

At the completion of the Practical Nursing program, the graduate should be able to:

1. use — under supervision — scientific knowledge and skills needed to plan and provide safe and comprehensive client-centered nursing care of the subacutely and chronically ill of all ages.
2. administer nursing care that reflects accurate assessments of the client's growth and development.
3. use problem-solving approaches in administering nursing care.
4. use effective communication skills.
5. assist the professional and technical nurse in the care of the acutely ill client.
6. demonstrate knowledge of the role of community health agencies in meeting health needs of society.
7. adhere to an acceptable code of ethical behavior based on standards set by health care delivery agencies.

PRINTING (GP)
Certificate/2 years

This program provides practical skills training in all printing operations. Students learn to set type, to paste up type, to operate cameras and printing presses. Finishing operations — collating, binding and cutting — are also covered.

Types of Jobs: Camera work, stripper, layout work, compositor, platemaker, and press work.

FIRST SEMESTER

			Credits
GCO	511	Layout and Design	4
GCO	512	Typographic Composition	4
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
SEC	509	Typewriting	1
			15

SECOND SEMESTER

			Credits
GCO	521	Process Camera	4
GCO	522	Film Assembly and Imposition	4
MGT	247	Small Business Management	3
MTH	500	Technical Mathematics II	3
		Elective	3
			17

THIRD SEMESTER

			Credits
GCO	631	Platemaking, Substrates & Finishing	4
GCO	632	Press Operations	4
GCO	635	Printing Estimating Practices	3
CHM	299	Chemistry of Lithography	3
		Elective	3
			17

FOURTH SEMESTER

			Credits
GCO	641	Advanced Typographic Composition	3
GCO	642	Advanced Process Camera and Stripping	3
GCO	645	Printing Processes	3
CSC	118	Fundamentals of Computer Science	3
			12

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Printing program is to prepare students for employment in the printing industry.

A graduate of the Printing program should be able to:

1. recognize the major printing processes, their products, and the advantages of each process.
2. demonstrate the skills needed for entry-level jobs (as advanced trainees) in the following areas: layout and design, copy preparation and typesetting, stripping (setting up camera negatives for printing), platemaking (transferring copy to be printed onto a metal plate for use on a printing press), presswork and finishing operations (collating, binding, cutting, etc.).
3. evaluate his/her abilities and limitations in various areas of the graphic arts.
4. demonstrate good work habits: promptness, willingness to work, and the ability to accept supervision.
5. demonstrate knowledge of equipment and use appropriate safety precautions when working around such equipment.
6. compare production departments (typesetting and layout, camera, press and bindery) and the contributions each makes to the final product.
7. write clear, concise, legible, and accurate technical reports using standard English.
8. demonstrate skill in basic verbal communications.
9. solve basic math problems related to printing operations.

QUANTITY FOOD PRODUCTION AND SERVICE (QF)

Certificate/1 year

Quantity Foods is designed to prepare students for a variety of careers in the food industry. The program covers the essentials of food preparation with the emphasis on basic skills and hands-on experience.

Types of Jobs: Short order cook, sous chef, kitchen worker, salad preparation and cold buffet cook, waiter, waitress, bus person, hostess, cashier.

Recommended High School Subjects: High school courses in home economics with an emphasis on food preparation would be helpful, but are not required.

FIRST SEMESTER

			Credits
QFP	510	Introduction to Food Service (8 weeks)	3
QFP	511	Salads, Soups and Sandwich Preparation (8 weeks)	4
QFP	520	Management and Production Techniques (8 weeks)	3
QFP	521	Desserts, Sauces and Meat Preparation (8 weeks)	4
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
QFP	530	Techniques of Food Production (8 weeks)	3
QFP	531	Starches and Entree Production (8 weeks)	4
QFP	540	Advanced Techniques of Food Production and Services (8 weeks)	3
QFP	541	Short Order Preparation (8 weeks)	4
ENL	711	Communications	3
			17

PROGRAM OBJECTIVES

The general objective of the Quantity Foods program is to prepare students for jobs in the quantity foods industry and to provide the background needed for advanced training—either on-the-job or at the college level.

Graduates should be able to:

1. understand and practice high levels of sanitation and safety.
2. use small equipment safely and quickly.
3. read recipes, measure and portion correctly.
4. operate and clean large equipment typical of a commercial kitchen.
5. practice methods of work simplification and accurately time food preparation.
6. purchase, store and handle foods correctly.
7. prepare and artfully present a variety of foods typical of restaurant and institutional food service.

8. work cooperatively with kitchen personnel.
9. perform front-of-the-house duties with ease.
10. demonstrate awareness of job opportunities in the food service industry.
11. demonstrate awareness of good nutritional guidelines and practices for conserving nutrition.
12. apply knowledge of mathematics in determining recipe adjustments, in food cost accounting, and in front-of-the-house accounting.
13. demonstrate the ability to write letters of application, memos, purchase orders and reports, and apply communication skills on the job.

RADIOLOGIC TECHNOLOGY (RT)

Associate Degree/2 years

This program includes courses in anatomy, physiology, physics, medical terminology and professional ethics, in radiologic equipment and safety, and in English and mathematics. Practical experience with sick and injured patients — under qualified technical supervision in cooperating local hospitals — is an important aspect of the program. Internships in affiliated hospitals — required to meet eligibility requirements for registry exams — are scheduled during the summer.

This program must be completed within 24 consecutive months. Approximately 2300 practicum hours are included to qualify students to take the registry examination. See page 5 for special admission requirements for this program.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry.
Recommended High School Subjects: Two years of algebra.

FIRST SEMESTER

			Credits
RAD	110	Radiologic Technology I	5
BIO	115	Human Anatomy and Physiology I	4
MTR	101	Medical Terminology I	3
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
			18

SECOND SEMESTER

			Credits
RAD	120	Radiologic Technology II	7
BIO	125	Human Anatomy and Physiology II	4
PHS	112	Introductory Physics	4
MTH	104	College Algebra & Trigonometry II	3
			18

RAD	200	FIRST SUMMER INTERNSHIP	No Credit

THIRD SEMESTER

			Credits
RAD	230	Radiologic Technology III	10
PHS	122	Radiation Physics	3
		Elective-Psychology*	3
			16

FOURTH SEMESTER

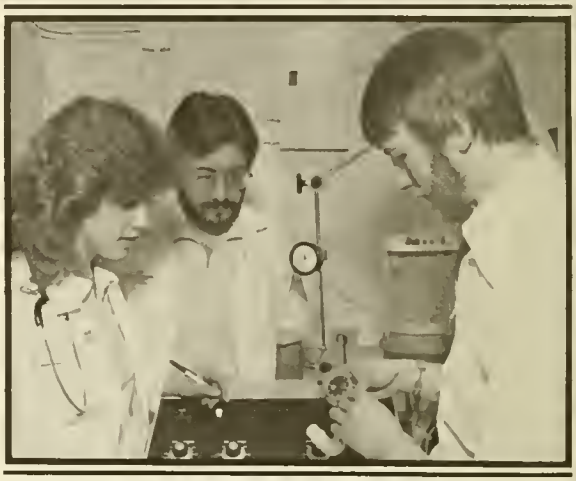
			Credits
RAD	240	Radiologic Technology IV	10
ENL	121	English Composition II	3
SOC	111	Introduction to Sociology	3
			16

RAD	200	SECOND SUMMER INTERNSHIP	No Credit

*Psychology Electives:

PSY	111	General Psychology	3
PSY	201	Abnormal Psychology	3
PSY	241	Social Psychology	3

NOTE: Radiologic Technology students are exempted from the College's required Physical Education courses.



PROGRAM OBJECTIVES

The general program objective is to provide students with academic and practical experiences to prepare them to pass the National Radiologic Technology Registry Examination and to qualify for employment as registered radiologic technologists. Graduates will also be able to transfer to a four-year program in radiologic technology.

Upon completion of the two-year Radiologic Technology program students should be able to:

1. apply knowledge acquired in radiation protection courses in the clinic — as it applies to patients, him or herself, and others.
2. use knowledge of anatomy, positioning, and radiographic techniques to accurately show anatomical structures on a radiograph.
3. determine exposure factors needed to produce the best radiographs possible with minimum radiation exposure to the patient.
4. recognize differences between diagnostic quality and inferior radiographs.
5. exercise discretion and good judgment in all aspects of work.
6. provide for the physical and emotional needs of the patient.
7. recognize patient emergencies and initiate lifesaving first aid.
8. apply knowledge of mathematics in determining exposure factors.
9. use effective communication skills.
10. use correct medical and anatomical terminology in radiologic technology work.
11. apply the necessary knowledge of basic electronics and physics to radiographic work.

RESPIRATORY THERAPY TECHNICIAN (HC)

Certificate/16 months

The Respiratory Therapy Technician program is offered in cooperation with the Harrisburg Area Community College. In addition to course work at The Williamsport Area Community College, students complete specialized respiratory therapy courses in Harrisburg. Clinical training is held at the Divine Providence and Williamsport Hospitals.

The program prepares students for careers in respiratory therapy — which includes assisting in the treatment, management, control, diagnostic evaluation, and care of patients with defects and diseases of the pulmonary system (for example, asthma, cancer, emphysema). Students are required to earn a minimum grade point average of 2.00 and a minimum grade of "C" in each math and science course.

Students seeking admission to this program must meet the general college admission requirements and be accepted to The Williamsport Area Community College. (Please see page 5 for special admission requirements for this program.) On or before March 1 of the student's academic year at The Williamsport Area Community College, a committee of representatives from both colleges will select four students who will be permitted to complete the program at H.A.C.C.

We recommend that students who require additional academic work, based on the results of the college placement tests, enroll in and complete the necessary courses prior to beginning this program.

The Harrisburg Area Community College also offers an associate degree level program leading to registry eligibility. For more information on the associate degree program and on registry eligibility, contact H.A.C.C. at (717) 780-2315.

Types of Jobs: Respiratory therapy technician providing patient care in hospitals and clinics.
Recommended High School Subjects: Chemistry, biology, two years of algebra.

FIRST SEMESTER

			Credits
MTH	103	College Algebra & Trigonometry I	3
NUR	711	Nursing Relationships	3
BIO	115	Human Anatomy and Physiology I	4
ENL	111	English Composition I	3
PSY	111	General Psychology	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
BIO	125	Human Anatomy and Physiology II	4
BIO	201	Microbiology	4
CHM	100	Fundamentals of Chemistry	4
ENL	121	English Composition II	
		or	3
ENL	202	Fundamentals of Speech	
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
*Allied Health	111	Respiratory Therapy Survey	3

FOURTH SEMESTER

			Credits
*BIO	230	Physiological Pathology	3
*Allied Health	112	Respiratory Therapy I	8
			11

SUMMER SESSION

			Credits
*Allied Health	113	Respiratory Therapy II	8
			8

*Course work offered at the Harrisburg Area Community College in Harrisburg, Pa., with clinical experiences at The Williamsport Hospital and Divine Providence Hospital, both in Williamsport.

RETAIL MANAGEMENT (RM)

Associate Degree/2 years

This program provides a strong background in marketing, merchandising, retailing, and related business fields.

Types of Jobs: Retailers, buyers, wholesalers, purchasing agents, sales managers, salespersons, salesworkers, marketing managers, distribution managers.

FIRST SEMESTER

			Credits
ACC	112	Accounting I	3
MGT	110	Principles of Business	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ECO	201	Principles of Economics	3
MGT	230	Business Communications	3
MGT	231	Business Law I	3
MKT	233	Retail Principles	3
ENL	202	Fundamentals of Speech	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
MKT	243	Sales	3
MKT	247	Retail Management	3
CSC	118	Fundamentals of Computer Science	3
MKT	240	Marketing	3
		Elective or Approved Co-op	3
			15

FOURTH SEMESTER

			Credits
ADV	101	Advertising	3
MGT	248	Supervision & Human Relations	3
MKT	245	Fashion Merchandising and Display	4
		Elective-Social Science/Humanities	3
		Elective	3
			16

Co-op Options:
Parallel
Summer

EVENING PROGRAM

Courses required for the associate degree in Retail Management are also offered in the evenings for the convenience of students who are unable to attend classes during the day. Students may complete all courses required for a degree in Retail Management by enrolling in evening courses on a part-time basis. Part-time students may require more than two years to complete the program.

PROGRAM OBJECTIVES

The general goal of the Retail Management program is to prepare graduates for middle management level jobs in the private sector of the retail and/or wholesale field. As an alternative, graduates may pursue advanced education. The program will also upgrade the skills of those now employed in the field.

The graduate should be able to:

1. review and evaluate the administrative processes and policies for marketing and retail merchandising.
2. evaluate customer behavior and motivation as it applies to a profitable enterprise.
3. develop advertising campaigns using the media that is most effective in terms of cost, consumer appeal, and desired results.
4. explain the steps involved in identifying and segmenting a market.
5. relate in a positive manner to supervisors, peers, and subordinates.
6. demonstrate skills in effective verbal and written communications.
7. apply analytical techniques in preparing financial statements and inventory systems.
8. demonstrate general knowledge of electronic data processing, point of sale equipment and microcomputer applications.
9. identify the laws affecting business.
10. identify the need for physical fitness and positive leisure activities.

SECRETARIAL SCIENCE (BS) (Executive)

Associate Degree/2 years

This program provides skills in typing, shorthand, and general office practices. Courses in accounting, business, and liberal studies are included in the program.

Types of Jobs: Business, commerce, government, industry, or the professions.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	112	Accounting I	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
		Elective-Social Science/Humanities	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MGT	110	Principles of Business	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	248	Supervision and Human Relations	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

SECRETARIAL SCIENCE (BS) (Legal)

Associate Degree/2 years

This program provides skills in typing, shorthand, the operation of business machines, and general office practices. Courses in business law and liberal studies are included in the program.

Types of Jobs: Business, commerce, and law.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	112	Accounting I	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
		Elective-Social Science/Humanities	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MGT	231	Business Law I	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	241	Business Law II	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

SECRETARIAL SCIENCE (BS)
(Medical)
Associate Degree/2 years

This program provides skills in typing, shorthand, the operation of business machines, and general office practices. Courses in biology, medical terminology, and liberal studies are included in the program.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	112	Accounting I	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
BIO	121	Basic Anatomy & Physiology	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MTR	101	Medical Terminology I	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
		Elective-Social Science/Humanities	3
MTR	102	Medical Terminology II	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Secretarial Science program is to prepare the student for employment in one of three secretarial fields: executive, legal, or medical. Skills related to each field are stressed. Courses in general secretarial skills are included. The program prepares graduates to enter and advance in the secretarial profession.

The graduate should be able to:

1. demonstrate proficiency in administrative secretarial skills.
2. apply correct terminology, use forms, and demonstrate skills in the area of specialization – executive, legal, or medical.
3. speak and write clearly and effectively.
4. use skills in specialized secretarial office procedures.
5. demonstrate extensive knowledge of modern office equipment and office supplies.
6. apply working knowledge of advanced duplicating and other copying methods, word and information processing, and computation skills.
7. assess and influence behavior among supervisors, peers, and subordinates.
8. apply general knowledge of the social sciences, and understand their effect on our society.
9. identify the need for physical fitness and positive leisure activities.

SERVICE AND OPERATION OF HEAVY CONSTRUCTION EQUIPMENT (SO)

Certificate/2 years

This program trains students to maintain, repair and operate many types of construction equipment. It covers the rebuilding of gasoline and diesel engines; power trains; hydraulic and hydrostatic systems; surveying, estimating; and complete mechanical safety measures.

Types of Jobs: Operation, mechanical repair, sales and service of heavy equipment, including work in parts department. Self-employed or employed by contractors, mines, quarries, farm equipment dealers, forestry equipment dealers and construction equipment dealers.

FIRST SEMESTER

			Credits
SOE	713	Service and Operation I (8 weeks)	7
SOE	714	Service and Operation II (8 weeks)	7
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
SOE	725	Service and Operation III (8 weeks)	7
SOE	726	Service and Operation IV (8 weeks)	7
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
SOE	837	Service and Operation V (8 weeks)	7
SOE	838	Service and Operation VI (8 weeks)	7
		Optional Elective	0/3
			14/17

FOURTH SEMESTER

			Credits
SOE	847	Service and Operation VII (8 weeks)	6
SOE	848	Service and Operation VIII (8 weeks)	6
		Optional Elective	0/3
			12/15

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Service and Operation of Heavy Equipment program is to prepare students for jobs in the construction equipment industry.

A graduate of Service and Operation should be able to:

1. practice approved safety procedures in various work situations.
2. read and interpret equipment manuals and issue clear, legible, and complete service reports.
3. identify and manipulate tools of the trade.
4. describe the operation of internal combustion engines and demonstrate skills in troubleshooting, maintaining and repairing such engines.
5. troubleshoot, maintain, and repair the complete power train and related components such as brake systems.
6. demonstrate skills in oxyacetylene welding, cutting, brazing, and electric welding applications.
7. distinguish the various types of hydraulic systems, power shift transmissions, torque converters, fuel systems, and heavy duty electrical systems found on construction equipment; maintain, troubleshoot, and repair these systems.
8. demonstrate the use of transits and hand levels in construction layouts.
9. perform preventive maintenance on all heavy equipment systems.
10. demonstrate the use of various pieces of heavy equipment and use earth-moving techniques accepted by industry.
11. use appropriate math skills to solve applied problems in the field of heavy equipment.
12. identify the personal attributes required for successful relationships with employers, customers, and fellow employees.

SURGICAL TECHNOLOGY (ST)

Certificate/1 year

Surgical Technology prepares students to take the National Certification exam — given by the Association of Surgical Technologists and required for employment in this field. Students develop skills in operating room procedures in area hospitals. The program includes classroom instruction in anatomy, physiology and surgical technology. This combination of clinical training and classroom work prepares students to work with surgeons and nurses in hospital operating rooms.

Types of Jobs: Member of a surgical team in a hospital operating room and other related areas where surgical techniques are used.

FIRST SEMESTER

			Credits
BIO	110	Anatomy & Physiology I	3
MTR	101	Medical Terminology I	3
SRT	110	Principles of Surgical Technology I	12
			18

SECOND SEMESTER

			Credits
SRT	120	Principles of Surgical Technology II	4
SRT	121	Clinical Surgical Technology	10
		Optional Elective	0/3
			14/17

PROGRAM OBJECTIVES

The general objective is to prepare students to take the National Certification exam required for employment as a certified operating room technician.

The Surgical Technology graduate should be able to:

1. apply background knowledge of the basic sciences, surgical anatomy, and aseptic technique in surgical procedures.
2. describe operating room techniques and their relation to patient care in order to perform tasks assigned by professional nursing personnel.
3. practice good personal hygiene habits and state their effect in reducing infection.
4. describe the interdepartmental relationships between the operating room and other hospital services.
5. identify the need for adhering to hospital policies and procedures, ethics, and medical, moral, and legal codes.
6. describe the development of a rigid surgical conscience, its application in the operating room and its relationship to an uncomplicated post-operative recovery for the patient.
7. apply and, when necessary, modify aseptic principles when encountering unexpected emergency situations.
8. demonstrate knowledge and understanding of all surgical procedures in order to function as a member of the surgical team; give appropriate assistance to the surgeon and meet the needs of the patient.
9. identify and describe the cost, preparation, use, care and after-care of equipment, instruments and supplies, and their importance in the safe and effective performance of surgical procedures.
10. demonstrate awareness of the responsibilities and limitations of the role of the operating room technician and work within these limits.
11. state the extent of liability of operating room technicians and the importance of correct, adequate, direct supervision.
12. describe the organization of the hospital, its physical plant, and personnel requirements, practices and policies.
13. work quickly; use operating room materials economically; demonstrate accuracy, speed, physical stamina and the ability to respond appropriately to emergency situations.
14. demonstrate knowledge of the holistic approach to patient care.

TECHNICAL ILLUSTRATION (TI)

Associate Degree/2 years

This program trains students for jobs in industry as technical illustrators. Students learn to convert engineering drawings into three dimensional illustrations used by engineers and in publications — parts catalogs, sales materials, repair manuals and others. The program includes training in drawing and other art skills. Courses in the humanities, mathematics and communications improve students' potential for advancement.

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers; in publications, you would produce illustrations for company literature; parts and sales catalogs; maintenance, repair, and assembly manuals, charts, and handbooks.

Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ART	111	Basic Drawing	3
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
		Elective*	3
			15

THIRD SEMESTER

			Credits
EDT	108	Manufacturing Processes	3
ART	121	Basic Painting	3
ART	232	Lettering and Layout	3
GCO	515	Layout and Design	3
GCO	516	Typographic Composition	3
PED		Physical Education	1
		Elective*	3
			19

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
GCO	525	Process Camera	3
GCO	526	Film Assembly and Imposition	3
ENL	121	English Composition II	3
		Elective-General*	3/4
			15/16

*Suggested Electives

MGT	110	Principles of Business	3
ENL	202	Fundamentals of Speech	3
GOV	231	American Government-National	3
GOV	241	State and Local Government	3
HIS	111	Western Civilization I	3
HIS	121	Western Civilization II	3
HIS	231	U.S.—Survey I	3
JOU	232	Copyreading and Editing	3
PSY	111	General Psychology	3
SOC	111	Introduction to Sociology	3
ECO	201	Principles of Economics	3
ESC	100	Environmental Science	3
GEL	105	Physical Geology	4

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Technical Illustration program is to prepare students for jobs as technical illustrators in industry, or for transfer to a baccalaureate degree program.

A graduate of the Technical Illustration program should be able to:

1. convert engineering drawings into three-dimensional illustrations.
2. letter and lay out materials using a variety of mediums — black and white and color — both in line and continuous tone (refers to use of shading or color in illustration).
3. relate technical knowledge to the areas above in order to make effective decisions.
4. follow written and verbal directions.
5. demonstrate respect for equipment and use appropriate safety precautions when working around equipment.
6. demonstrate good work habits: promptness, willingness to work, and receptivity to supervision.
7. use mathematical skills for effective job performance and as required for the development of visualization skills and logical thought processes.
8. communicate clearly, both verbally and in writing.
9. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

TECHNOLOGY STUDIES (TS)
Associate Degree

Technology Studies is a flexible program — designed especially for, but not limited to — people currently employed in industry or business. Course selection is based almost entirely upon the goals of the individual student. As many as 30 credits may be awarded through advanced placement, credit by examination, or credit for work/life experience, thus reducing the number of courses to be completed on campus. Most students will complete this program on a part-time basis; therefore, a number of specialized courses will be offered in a rotating sequence to provide increased scheduling opportunities.

The minimum requirements for the Associate Degree in Technology Studies are:

1. Successfully complete a minimum of 60 credit hours of associate degree level courses (see page 82 for definition) in a planned program of study.
2. The 60 credit hours must include at least 18 credits of general education core courses selected from the following:

	Credits
Communications	6
Mathematics	6
Natural Sciences	3/4
Social Sciences and Humanities	3
	18/19

3. Forty-two credits must be taken as electives. Of these, 30 elective credits must be taken in technical career or vocational courses which are applicable to the Associate of Applied Science degree. Elective courses should be selected primarily on the basis of the student's vocational goals. The electives enable the student to select those vocational and/or general education courses which best meet his/her career, professional, and personal objectives.
4. Students must complete a planned educational program of studies. This plan should be developed in conjunction with an advisor and be filed with the appropriate division director prior to the completion of the first 18 hours of credit.

INDIVIDUAL CURRICULUM POSSIBILITIES

In consultation with an advisor, students may select precisely those courses which best meet their needs and prepare them to reach their goals. Examples of groups of courses which a student might select in designing his/her program are shown below.

Industrial Emphasis—Courses selected may include:

Courses in specialized fields, such as Machine Tool Technology, Electronics, Automotive Technology (based on student interest and course availability)
Industrial and Organizational Psychology
Supervision and Human Relations
Quality Control
Motion and Time Study
Specialized mathematics, such as statistics, applied calculus
Technical Writing

Engineering Emphasis—A student taking the Engineer in Training (EIT) courses (see page 80) may use completed EIT courses to fulfill requirements for the Technology Studies Degree. These courses are offered on a rotating, part-time basis and include:

Statics
Strength of Materials I
Dynamics
Fluid Mechanics
Strength of Materials II
Engineering Economics
Engineering Chemistry
Thermodynamics
Engineering Physics
Engineering Electronics

Management and Supervision Emphasis—Courses selected may include:

Principles of Business
Business Communications
Economics
Accounting
Supervision and Human Relations
Small Business Management
Psychology
Business Law
Specialized Mathematics
Computer Science
Specialized technical courses directed toward the student's vocational objectives

EVENING PROGRAM

Courses required for the associate degree in Technology Studies are also offered in the evenings for the convenience of students who are unable to attend classes during the day. Students may complete all courses required for a degree in Technology Studies by enrolling in evening courses on a part-time basis. Part-time students may require more than two years to complete the program.

PROGRAM OBJECTIVES

The general objective of the Technology Studies program is to enable the employed person to upgrade his/her skills and knowledge, whether for personal or professional reasons.

The graduate should be able to:

1. demonstrate potential for growth and apply the skills and competencies acquired.
2. formulate ideas logically and organize them into a productive plan to accomplish a chosen goal.
3. demonstrate increased vocational knowledge and skills.
4. illustrate an attitude of responsibility to self, employer, and community.
5. communicate effectively in personal and job related activities.
6. demonstrate comprehensive knowledge of communication and mathematical skills.
7. apply general knowledge of the social and natural sciences and understand their effect on our environment.

TOOL DESIGN TECHNOLOGY (TD)

Associate Degree/2 years

This program provides instruction in drafting, tool production techniques and tool drawings. It emphasizes planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies (a type of machine tool). The student is taught to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer; numerical programmer, design drafting, estimator, and systems program designer.

Recommended High School Subjects: Two years of algebra.

*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
EDT	108	Manufacturing Processes	3
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	3
PED		Physical Education	1
			15

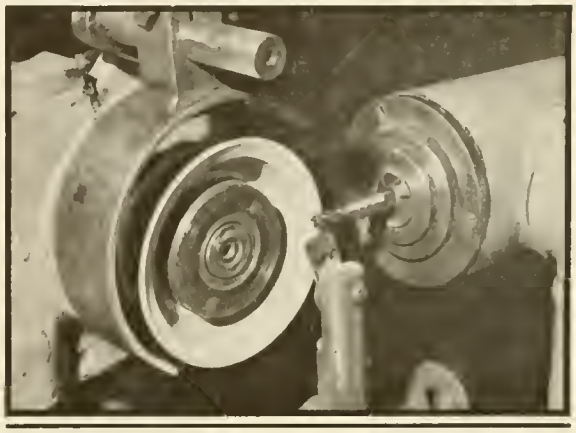
THIRD SEMESTER

			Credits
TDT	231	Tool Drafting (8 weeks)	4
TDT	232	Fixture Design (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
TDT	241	Gage Design and Programming (8 weeks)	4
TDT	242	Die Design (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer



PROGRAM OBJECTIVES

The general objective of this program is to train students in the skills needed for jobs in tool design.

A graduate of the Tool Design Technology program should be able to:

1. describe and apply the various manufacturing methods related to tool design.
2. select cutting tool materials to satisfy various metal removal operations.
3. apply tolerance limits and fits to meet manufacturing requirements.
4. apply calculations to determine cutting speeds and feeds for various metal removal applications.
5. design jigs and fixtures to hold tools and workpieces for the various metal removal applications.
6. design various kinds of gages and gaging setups to insure quality control.
7. write numerical control programs.
8. design piercing, stamping, and forming dies.
9. apply the basic principles of physics and metallurgy to the tool design process.
10. use mathematical skills to solve design problems.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. participate as an informed citizen in a democratic society based on values acquired in humanities and social science courses.
13. develop and use the fundamental skills provided through exposure to lifetime sports.
14. demonstrate fundamental skills and knowledge in the use of computer aided drafting (CAD) and computer aided manufacturing (CAM).
15. perform basic drawing functions on computer aided design equipment.

WELDING (WE)
Certificate/2 years

This program offers practical skills training in welding and a background in welding theory. It emphasizes electric, oxyacetylene, and inert gas shielded methods of welding.

Types of Jobs: Welder, welder operator, fitter, specialist, supervisor, and inspector.

FIRST SEMESTER

		Credits
WEL 712	Acetylene Welding	13
MTH 710	Technical Mathematics I	3
		16

SECOND SEMESTER

		Credits
WEL 722	Electric Welding	13
ENL 711	Communications	3
		16

THIRD SEMESTER

		Credits
WEL 832	Inert Gas Welding	13
EDT 107	Blueprint Reading	2
	Optional Elective	0/3
		15/18

FOURTH SEMESTER

		Credits
WEL 842	Welding (Advanced)	13
	Optional Elective	0/3
		13/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student for jobs in welding.

A graduate of the Welding program should be able to:

1. demonstrate skills in oxyacetylene, shielded metal arc, gas tungsten arc, and gas metallic arc welding processes.
2. operate welding equipment.
3. use safe welding techniques in shop and field operations.
4. distinguish the types of welding power sources (electric, gas, etc.), their characteristics, uses, and limitations.
5. inspect welding jobs using visual, destructive, and non-destructive testing methods.
6. construct weldments (objects made by welding metal) from sketches, blueprints or verbal instructions; understand welding symbols.
7. select the proper welding process, welding procedures, supplies, etc., based on cost limitations.
8. use simple shop methods for determining types of metals (ferrous and non-ferrous).
9. apply knowledge of the physical and mechanical properties of metals, as related to weldability, during the welding process.
10. duplicate welding qualification tests according to specifications of the American Welding Society, the American Society of Mechanical Engineers and the American Petroleum Institute Codes.
11. develop positive social attitudes and good work habits.
12. use the appropriate mathematical skills and competencies in solving applied problems in the field of welding.
13. demonstrate basic skills in speech and technical writing.

WOOD PRODUCTS TECHNOLOGY (WD)

Associate Degree/2 years

Wood Products Technology prepares students for mid-management and management positions in the wood processing and manufacturing industries. This program will also improve the management capabilities of people presently employed in the wood industry. The program combines courses in wood processing with courses in business to prepare students for various types of jobs. Students gain practical experience at the College's sawmill and through a co-op or internship experience.

Types of Jobs: Lumber inspector, dry kiln operator, sawyer, trimmer, edger, lumber yard supervisor, quality control technician, log and lumber buyer or seller, wood products sales, mill manager, planer mill manager, equipment sales.

FIRST SEMESTER

			Credits
WPT	111	Wood Properties and Utilization	3
FOR	111	Dendrology (Tree & Shrub Identification)	3
FOR	113	Forest Mensuration	3
MTH	500	Technical Mathematics II	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
WPT	121	Lumber and Log Grading	3
WPT	122	Sawmilling I	3
WPT	123	Lumber Drying	3
MGT	110	Principles of Business	3
ENL	201	Technical Writing	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
WPT	231	Wood Industry Co-op/Internship	3
WPT	232	Sawmilling II	3
FOR	242	Forest Products	3
ACC	112	Accounting I	3
MKT	240	Marketing	3
			15

FOURTH SEMESTER

			Credits
WPT	233	Quality Control	3
WPT	243	Production Management	3
WPT	244	Equipment and Machinery	3
MGT	248	Supervision and Human Relations	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The objective of Wood Products Technology is to prepare students for employment in the wood industry and related businesses and to improve the management capabilities of those presently employed in this industry.

A graduate should be able to:

1. identify the important commercial wood species and relate their characteristics to their potential uses.
2. identify selected species of trees and shrubs by their scientific and common names, general uses, site characteristics and geographic distribution.
3. describe the processes involved in converting logs into various wood products.
4. grade hardwood and softwood logs and lumber based on industry standards.
5. make recommendations concerning replacement, addition, and upgrading of machinery and personnel.
6. describe the process of finding markets, methods of merchandising, distribution from manufacturer to consumer, and mark-up procedures.
7. evaluate the quality of wood products at various stages of manufacturing.
8. apply skills in buying logs, processing wood, or marketing wood products.
9. demonstrate familiarity with the types, operation, and basic maintenance of the more important machines used in wood processing.
10. demonstrate familiarity with the principles of cutting lumber to obtain the best grade.
11. demonstrate basic skills in maintaining sawmills.
12. demonstrate basic skills in handling, stacking, and kiln and air drying of lumber.
13. apply knowledge of business organization and skills — planning, economics, financing, business law, worker's compensation, overhead determination, and profit and loss statements.
14. demonstrate leadership techniques and skills in interpersonal relationships needed to supervise others.
15. understand the basic concepts, techniques, procedures, and principles of accounting and bookkeeping.
16. write accurate, grammatically correct technical reports and demonstrate skill in verbal communication.
17. solve basic problems in arithmetic, algebra and trigonometry and apply math skills in solving practical problems related to the wood products industry.
18. demonstrate fundamental skills in lifetime sports.

WORD PROCESSING (WP)

Associate Degree/2 years

Students acquire a background in business and learn the specialized skills used in word processing operations. Graduates are qualified for jobs as word processing equipment operators and as first-line supervisors in word processing centers.

Types of Jobs: Word processing equipment operator and word processing center supervisor.

FIRST SEMESTER

			Credits
CSC	118	Fundamentals of Computer Science	3
ENL	111	English Composition I	3
MGT	110	Principles of Business	3
MGT	230	Business Communications	3
SEC	111	Typewriting I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
CSC		Computer Science Elective	3
ENL		English Elective	3
MGT	111	Business Mathematics	3
SEC	121	Typewriting II	3
WDP	121	Word Processing I	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
ACC	112	Accounting I	3
WDP	231	Machine Transcription and Office Procedures	3
WDP	232	Word Processing II	3
		Business/Computer Science Elective	3
		Elective	3
			15

FOURTH SEMESTER

			Credits
MGT	248	Supervision and Human Relations	3
WDP	241	Word Processing III	3
WDP	242	Word Processing Internship*	3
		Elective	3
		Social Science/Humanities Elective	3
			15

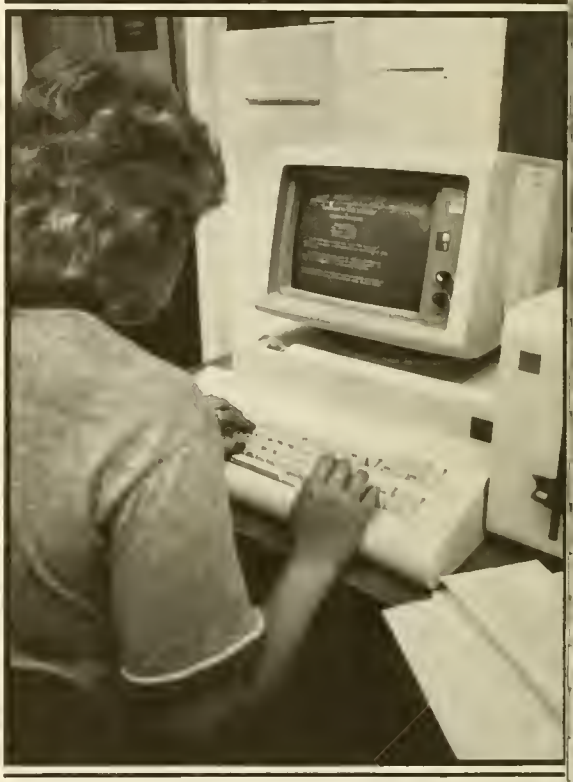
*A cooperative education experience may be substituted for Word Processing Internship.

PROGRAM OBJECTIVES

The primary objective of the Word Processing program is to prepare students for positions as word processing operators and first-line supervisors of word processing centers.

The graduate should be able to:

1. operate various types of word processing equipment.
2. select the best machine and methods to handle a given word processing task.
3. communicate effectively in writing.



4. edit materials, applying the rules of business writing, grammar, punctuation and transcription.
5. produce final copy from various forms of input: handwritten copy, machine dictation, etc.
6. demonstrate extensive knowledge and skill in using transcription equipment.
7. operate various types of advanced word processing printing devices.
8. handle communications between an information processor and a document printer.
9. design and prepare an effective procedures manual.
10. manage work flow by prioritizing work.
11. understand the role of management in word processing: personnel selection, training, and motivation.
12. demonstrate extensive knowledge of modern office equipment and office supplies.
13. demonstrate ability to reason logically, to analyze, and to evaluate information and to apply these processes to word processing problems.
14. relate in a positive manner to supervisors, peers and subordinates.
15. apply general knowledge of the social sciences.
16. identify the need for physical fitness and positive leisure activities.

General Studies

This program offers the equivalent of the first two years in a four-year Bachelor of Arts or Bachelor of Science program. The program is flexible — students select courses based on requirements of the four-year college to which they plan to transfer. (We recommend that students identify the college to which they plan to transfer as soon as possible.) A faculty advisor works with each student to design a program that best meets the student's future plans. Cooperative education options are available to students in General Studies.

OBJECTIVES

Upon completion of the General Studies Program the student will:

1. have general knowledge in each of the following areas: Communications, Mathematics and/or Statistics, Humanities, Social Sciences, Natural Sciences, and the development and maintenance of good health.
2. have comprehensive knowledge in one or more of the following areas: Communications, Mathematics and/or Statistics, Humanities, Social Sciences, Natural Sciences.
3. have the academic background needed to transfer into related baccalaureate degree programs.
4. demonstrate the ability to reason logically, to analyze, synthesize, and evaluate information, and to apply mathematical reasoning processes and/or the scientific method.
5. have an open mind and the willingness to modify performance or attitudes when faced with sufficient reason to do so.
6. produce work that demonstrates the ability to integrate various academic and practical experiences.
7. display an awareness of our cultural traditions and a sensitivity toward the traditions of other cultures.
8. display acceptable social values and attitudes in day-to-day activity, including productive citizenship and responsibility toward self and others.
9. experience greater joy in living because of an increased awareness of the social, cultural, and natural environments.

GRADUATION REQUIREMENTS

1. Successfully complete the College's graduation requirements for all Associate Degree Programs. (See pg. 125.)
2. Successfully complete a minimum of 60 credits of Associate Degree level course work (courses numbered 100 - 299) selected from the General Education Core areas (as defined below) plus four credits in health and physical education.

GENERAL EDUCATION CORE

Communications
English
Languages
Speech

Quantitative Concepts & Skills
Mathematics
Statistics

Humanities
Philosophy
History
Government

Social Sciences
Economics
Psychology
Sociology

Natural Sciences
Biology
Chemistry
Physics
Environmental Science
Geology
Geography

Appropriate associate degree courses in other subject areas may be substituted for the General Education Core courses with the prior written approval of the student's advisor and Division Director.

3. Successfully complete 25/26 credits of Associate Degree level General Education Core courses which must include:

Communications	6 credits
Quantitative Concepts and Skills	6 credits
Humanities	3 credits
Social Science	3 credits
Natural Science (to include at least 3 hours of laboratory)	7-8 credits

4. Successfully complete 2 credits in health and 2 credits in physical education OR 4 credits in physical education. Part-time students may be exempt from this requirement.
5. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or through successful completion of appropriate courses (Developmental Studies courses) designed to provide basic skills and competencies in these areas.

COLLEGE AND UNIVERSITY TRANSFER PROGRAMS

The General Studies Program Curriculum (GS)

To meet their individual needs, students may schedule courses other than those listed below (upon the recommendation of the student's academic advisor and approval by the appropriate Division Director). It is strongly recommended that as early as possible the student review the requirements of the particular program and the institution he/she plans to attend upon completing the General Studies program. Elective credits can then be selected to meet these requirements.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra & Trigonometry I	
PED		Physical Education	1
		Elective-Humanities	3
		Elective-Natural Science*	3-4
		Elective-General Core	3
			16-17

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Algebra & Trigonometry II	
PED		Physical Education	1
		Elective-Social Science	3
		Elective-Natural Science*	3-4
		Elective-General Core	3
			16-17

THIRD SEMESTER

	Credits
**An elective program based on the student's major educational and vocational interests. Completion of Physical Education requirement.	16-18 Credits

FOURTH SEMESTER

	Credits
**An elective program based on the student's major educational and vocational interests.	16-18 Credits

*To include at least one course with a three-hour laboratory.
**Elective credits may come from any 100 or 200 level associate degree courses offered by the College. We recommend that most of these credits be taken in the General Education Core discipline areas, especially if students plan to transfer to four-year degree programs.

Courses in other subject areas must be approved by the student's advisor and Division Director.

Curriculum Guides

Students who plan professional or semi-professional preparation in the arts and sciences may begin their undergraduate studies at The Williamsport Area Community College. Students who plan to transfer to four-year institutions to complete the requirements for the baccalaureate degree should schedule courses that meet the requirements of the institution to which they plan to transfer. The students' success in transferring to a particular college will largely depend on the quality of academic achievement at The Williamsport Area Community College.

Curriculum guides for professional careers requiring educat beyond an associate degree are shown below.

1. Business Administration Emphasis
2. Communications Emphasis
3. Education Emphasis
4. Math-Science Emphasis
5. Pre-Law Emphasis
6. Pre-Medical Emphasis
7. Pre-Theological Emphasis

The curriculum guides which follow are recommended (not required) programs.

Business Administration Emphasis

This program is designed for students who plan to transfer a four-year college or university to earn a baccalaureate deg in Business Administration. Career possibilities for students who complete a four-year program include accounting, economics, finance, foreign commerce, economic geograph industrial management, personnel management, insurance, marketing, and real estate.

FIRST SEMESTER

			Cr
ENL	111	English Composition I	
MTH	103	College Algebra & Trigonometry I	
HIS	111	Western Civilization I	
		or	
HIS	231	United States-Survey I	
MGT	110	Principles of Business	
PED		Physical Education	
		Elective-General Core	

SECOND SEMESTER

			Cr
ENL	121	English Composition II	
		or	
ENL	201	Technical Writing	
MTH	201	Elementary Statistics	
HIS	121	Western Civilization II	
		or	
HIS	241	United States-Survey II	
ECO	201	Principles of Economics	
PED		Physical Education	
		Elective-General Core	

THIRD SEMESTER

			Cr
ENL	202	Fundamentals of Speech	
ACC	112	Accounting I	
MGT	231	Business Law I	
PSY	111	General Psychology	
PED		Physical Education	
		Elective-Natural Science	

FOURTH SEMESTER

			Credits
[illegible]C	122	Accounting II	3
[illegible]ST	241	Business Law II	3
[illegible]SC	118	Fundamentals of Computer Science	3
PED		Physical Education	1
		Elective-General Core	3
		Elective-Natural Science	3-4
			16-17

[illegible]ommunications Emphasis

The program is designed for students planning careers in the [illegible]d of communications. Career possibilities include: [illegible]vertising, broadcasting, freelance writing, journalism and public relations. The intent of this program is not to prepare students for immediate employment upon graduation. It offers [illegible]dents opportunities to explore various careers in mass [illegible]mmunications while completing course work designed to transfer to a four-year college or university.

[illegible]RST SEMESTER

			Credits
ENL	111	English Composition I	3
JOU	111	News Writing	3
[illegible]U	114	Mass Media Photography	3
[illegible]CM	111	Introduction to Mass Communications	3
[illegible]D		Physical Education Elective	1
		Math elective*	3
			16

[illegible]COND SEMESTER

			Credits
ENL	121	English Composition II	3
[illegible]CM	122	Media and the Law	3
[illegible]Y	111	General Psychology	3
[illegible]S	111	Western Civilization I	3
PED		Physical Education	1
		Math elective*	3
			16

[illegible]IRD SEMESTER

			Credits
ENL	235	Creative Writing	3
[illegible]U	231	Feature Writing	3
		or	3
BRC	233	Broadcast Writing	
SOC	111	Introduction to Sociology	3
[illegible]D		Physical Education	1
		Elective-General Core	3
		Elective-Natural Science	3/4
			16/17

[illegible]URTH SEMESTER

			Credits
ENL	201	Technical Writing	3
ENL	202	Fundamentals of Speech	3
[illegible]CM	243	Public Relations	
		or	3
[illegible]V	101	Principles of Advertising	
PED		Physical Education Elective	1
		Elective-General Core	3
		Elective-Natural Science	3/4
			16/17

*Mathematics Electives:
[illegible]ITH 101/102 or MTH 103/104 sequence

Education Emphasis

The Education Emphasis is modeled on the first two years of a four-year professional education curriculum. Students have the opportunity to complete much of their general academic course work and to become familiar with education as a career. Students who enroll in this program usually go on to earn a baccalaureate degree. Graduates who choose not to continue their education may find jobs as teachers' aides, classroom assistants or in other paraprofessional areas.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
EDU	111	Introduction to Education	3
PSY	111	General Psychology	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra & Trigonometry I	
PED		Physical Education	1
		Elective-General Core	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
ECO	201	Principles of Economics	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Algebra & Trigonometry II	
PED		Physical Education	1
		Elective-General Core	6
			16

THIRD SEMESTER

			Credits
MTH	201	Elementary Statistics	3
EDU	121	Children's & Young Adult Literature	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
		Elective-General Core	3
		Elective-Natural Science	3-4
			16-17

FOURTH SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
PSY	231	Educational Psychology	3
HIS	121	Western Civilization II	3
PED		Physical Education	1
		Elective-General Core	3
		Elective-Natural Science	3-4
			16-17

Math-Science Emphasis

Students with a strong background in mathematics and science will find many opportunities in such fields as education, engineering, research, actuarial science, time-study analysis, and economics. They may also find careers as mathematical or scientific technicians in business, industry, and government.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
ECO	201	Principles of Economics	3
PED		Physical Education	1
			17-18

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	
		or	3-4
MTH	248	Calculus II	
HIS	121	Western Civilization II	
		or	3
HIS	241	United States-Survey II	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
PED		Physical Education	1
		Elective-General Core	3
			17-18

THIRD SEMESTER

			Credits
		Literature or Sociology	3
MTH	201	Elementary Statistics	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED		Physical Education	1
		Elective-General Core	3
			17

FOURTH SEMESTER

			Credits
		Literature or Sociology	3
MTH	204	Matrix Algebra	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED		Physical Education	1
		Elective-General Core	3
			17

Pre-Law Emphasis

The student who plans to enter law school should develop a program which includes a broad base of liberal studies. The Association of American Law Schools recommends that programs emphasize the following:

1. Comprehension and expression in words
2. Critical understanding of human institutions and values
3. Creative power in thinking

The program below is based on these recommendations. Modifications in this program should be planned in conjunction with the pre-law advisor.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	
MTH	103	College Algebra & Trigonometry I	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
PSY	111	General Psychology	
PED		Physical Education	
		Elective-General Core	3
			16-17

SECOND SEMESTER

			Cred
ENL	121	English Composition II	3
MTH	104	College Algebra & Trigonometry II	
		or	
MTH	248	Calculus II	
HIS	121	Western Civilization II	
SOC	111	Introduction to Sociology	3
PED		Physical Education	
		Elective-General Core	
			16-

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	
ACC	112	Principles of Accounting I	
PHL	111	Introduction to Philosophical Analysis	3
GOV	231	American Government-National	3
PED		Physical Education	
		Elective-Natural Science	
			16-17

FOURTH SEMESTER

			Cred
ECO	201	Principles of Economics	
ACC	122	Principles of Accounting II	
PHL	121	Ethics and Political Analysis	3
GOV	241	State and Local Government	3
PED		Physical Education	
		Elective-Natural Science	
			16-17

Pre-Medical Emphasis

The Pre-Medical Emphasis offers preparation for careers in medicine, pharmacy, dentistry, optometry, veterinary medicine, chiropractic, other health professions, and scientific research. The program also meets the needs of students interested in fields like chemistry, physics and biology. Because of the rigorous and time-consuming nature of the medical programs — which include much training in clinical laboratories and patient-related experiences — students should have aptitudes in mathematics and science. Laboratory experience and manual dexterity are also important.

FIRST SEMESTER

			Cred
ENL	111	English Composition I	3
MTH	103	College Algebra & Trigonometry I	
		or	3
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
BIO	113	General Biology I	
CHM	111	General Chemistry I	
			17-18

COND SEMESTER

			Credits
	121	English Composition II	3
H	104	College Algebra & Trigonometry II	
		or	3-4
H	248	Calculus II	
Y	111	General Psychology	3
	123	General Biology II	4
M	121	General Chemistry II	4
D		Physical Education	1
			18-19

RD SEMESTER

			Credits
		Literature or Sociology	3
S	116	General Physics I	4
	115	Human Anatomy & Physiology I	4
D		Physical Education	1
		Elective-General Core	3-6
			15-18

URTH SEMESTER

			Credits
		Literature or Sociology	3
S	126	General Physics II	4
	125	Human Anatomy & Physiology II	4
	201	Microbiology	4
D	201	Personal & Community Health	2
			17

-Theological Emphasis

s program is designed for students planning careers in gious education, the missionary field, or the ministry. It is ed on recommendations set forth by the Association of ological Schools. They advise that students acquire a kground in the liberal arts, complemented by a major in er the humanities or the social sciences. Following duation, students should plan to complete their education a four-year college or university.

ST SEMESTER

			Credits
	111	English Composition I	3
H	101	Introduction to Mathematics I	
		or	3
H	103	College Algebra & Trigonometry I	
Y	111	General Psychology	3
	111	Western Civilization I	3
D		Physical Education	1
		Elective-General Core	3
			16

COND SEMESTER

			Credits
	121	English Composition II	3
H	102	Introduction to Mathematics II	
		or	3
H	104	College Algebra & Trigonometry II	
C	111	Introduction to Sociology	3
	111	Western Civilization II	3
D		Physical Education	1
		Elective-General Core	3
			16

RD SEMESTER

			Credits
	202	Fundamentals of Speech	3
	111	Introduction to Philosophical Analysis	3
C	231	Marriage and the Family	3
D		Physical Education	1
		Elective-Social Science	3
		Elective-Natural Science	3-4
			16-17

FOURTH SEMESTER

			Credits
ECO	201	Principles of Economics	3
PHL	121	Ethics and Political Philosophy	3
PSY	203	Developmental Psychology	3
PED		Physical Education	1
		Elective-Social Science	3
		Elective-Natural Science	3-4
			16-17

INDIVIDUAL STUDIES PROGRAM

Individual Studies is the most flexible program offered by the College. It is designed for the student who wants to explore a number of careers — people interested in personal enrichment — someone who wants to prepare for a very specialized career — anyone whose educational goals are not met by the College's other programs. Cooperative education options are available to students enrolled in Individual Studies.

OBJECTIVES

Upon completion of the Individual Studies Program the student will have developed one or more of the following:

1. awareness of his/her academic and manual abilities and careers in which they can be applied.
2. extensive knowledge of one or more subjects.
3. technical skills in one or more areas and general knowledge in desired academic subjects.
4. entry-level job skills in a paraprofessional or technical field.
5. completion of courses required for the four-year program into which he/she intends to transfer.

GRADUATION REQUIREMENTS

1. Successfully complete the College's graduation requirements for all Associate Degree Programs. (See pg. 125.)
2. Successfully complete a minimum of sixty (60) credits of Associate Degree level course work:
   a. The 60 credit hours must include 12 credits of General Education Core courses (see page 75 for a list of General Education Core course subjects) as specified below:

Communications	6 credits
Mathematics or Statistics	3 credits
Humanities OR Social Sciences OR Natural Sciences	3-4 credits

   b. Full-time students must complete four additional credits of Physical Education, bringing the total number of required credits to 64; part-time students may be exempted from this requirement.
3. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or through successful completion of appropriate courses (Developmental Studies courses) designed to provide basic skills and competencies in these areas.
4. The student must complete a planned educational program of studies.

   This plan should be developed by the student and his or her advisor and be filed with the appropriate Division Director prior to the completion of eighteen (18) semester hours of credit.

...TRANSFER PROGRAMS

CURRICULUM POSSIBILITIES

Students in Individual Studies select courses based almost entirely on their goals. Advisors work with students in designing programs and selecting the courses which will best meet their needs. It may take longer than two years to complete courses desired because of scheduling conflicts. This is particularly true for students who schedule laboratory or shop courses which require large blocks of time.

AN EXAMPLE OF A PLANNED INDIVIDUAL STUDIES PROGRAM

A person may wish to enroll in the Individual Studies program to prepare for a particular occupational specialty. For example, someone who enjoys flower arranging and cooking might want to prepare to own and run a catering business. Courses could be selected from Food and Hospitality Management, Floriculture, Business, and related areas. One possible selection of 64 credits of course work follows:

Food and Hospitality Management
Quantity Food Preparation
Menu Planning & Cost Control
Purchasing, Storage & Sanitation
Hospitality Merchandising
Equipment & Layouts
Personnel Management, Work Simplification

Floriculture
Floral Design I
Floral Design II
Flower Shop Operation

Business
Principles of Business
Business Communications
Accounting I
Accounting II
Small Business Management
Business Mathematics

Related
Introduction to Mathematics I
English Composition I
English Composition II
Fundamentals of Chemistry
Physical Education

Another student with this same career goal might choose to emphasize another area depending on interest and prior experience. For example, someone who had prepared food for many large parties in their own home might feel quite competent in the food area and wish to emphasize business courses. The exact combination of courses in the individual studies program is decided entirely by the individual, with the help of an advisor.

EXAM PREPARATION

Exam Preparation

Engineer In Training (EIT) Exam Preparation

The Engineer In Training (EIT) courses prepare students to take the EIT examination. The EIT exam is one of the requirements for becoming a registered professional engineer in the State of Pennsylvania. These courses are open to anyone who wants to prepare for the examination. Courses offered are:

Course Title	Course Number
STATICS	EIT 201
STRENGTH OF MATERIALS I	EIT 202
DYNAMICS	EIT 203
FLUID MECHANICS	EIT 204
STRENGTH OF MATERIALS II	EIT 205
ENGINEERING ECONOMICS	EIT 206
ENGINEERING CHEMISTRY	EIT 207
THERMODYNAMICS	EIT 208
ENGINEERING PHYSICS	EIT 209
ENGINEERING ELECTRONICS	EIT 210

The Engineer In Training courses may also be used to meet requirements for the Technology Studies degree (see page 70 for more information on Technology Studies).

Real Estate

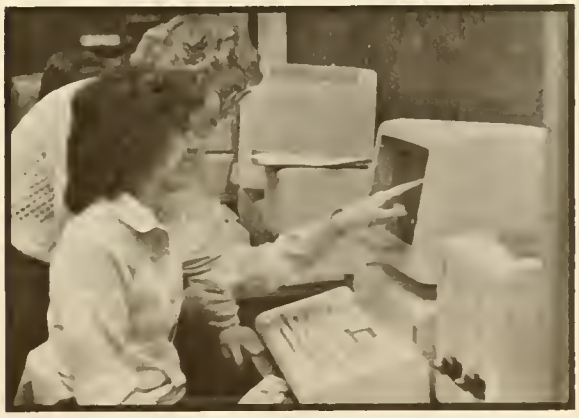
All real estate courses offered by the Business and Computer Science Division are listed below. The list also shows the courses which can be applied to the State Real Estate Commission's requirements for a salesperson's license or a broker's license.

Course Title	Course No.	Cr.	License for Salesperson	Broker
Real Estate Fundamentals	RES 112	3	X	X
Real Estate Law	RES 113	3		X
Real Estate Appraisal	RES 114			X
Real Estate Practice	RES 115	3	X	X
Real Estate Financing	RES 116	3		X
Real Estate Management	RES 117	3		X
Real Estate Principles	RES 212	3		X
Real Estate Math	RES 119	3		X
Real Estate Taxes	RES 120	3		X

All prospective real estate salespersons are required to take two (2) standardized real estate courses to qualify for the salesperson's examination. These courses are "Real Estate Fundamentals" and "Real Estate Practice".

To qualify to take the test for a broker's license students need 16 credits in real estate.

COURSES



COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject – Accounting, Advertising, Advertising Art, Agribusiness, Architectural Technology, Automotive, Aviation, Biology, etc.

The letters and numbers preceding the names of the courses are an identification code for recording purposes. Courses are designated by numbers as follows:

Courses Numbered	Description
001 - 099	Developmental courses which may be required of students on the basis of placement tests. The College awards institutional credit for these courses. This credit will appear on the student's transcript and count in the Cumulative Grade Point Average. However, credits earned in courses numbered 001-099 may not replace any courses or electives required in a given program.
100 - 299	College-level courses applicable to Associate Degree programs.
500 - 699	Courses are applicable to Associate Degree and Certificate programs, with the exception of the General Studies program.
700 - 899	Courses applicable to Certificate programs.

Credits

The number given after the course description shows the number of credits awarded for the course. The first number in parentheses shows the number of lecture hours per week. The second number, which appears after the dash, shows the number of laboratory or shop hours per week.

Prerequisite and Corequisite Courses

Prerequisite and corequisite courses are listed in italics at the end of the course description. Prerequisites are courses which must be completed before the student enrolls in the course for which they are listed as prerequisites. Corequisites are courses which the student must take prior to or at the same time as the course for which they are listed as corequisites.

SPECIAL TOPICS COURSES: (1-5 credits)

Any course with the number "299" (for example BCS 299) is a Special Topics Course.

COURSE DESCRIPTION

Special attention to particular abilities, interests of students, and particular topics. Individual guidance in advanced studies. Admission by permission of the instructor, Division Director, and Dean of Academic Affairs.

ACCOUNTING (ACC)

ACC 112
ACCOUNTING I
Introduction to elementary accounting principles. Includes the p cedures, terms, theories, and practical applications of proprietorship counting. Develops the foundation of accounting principles necessary fo success in advanced courses and helps prepare the student for employ ment in business. 3 Cr. (3-0).

ACC 122
ACCOUNTING II
Continues the development of accounting principles as applied to the d ferent forms of business organization. Emphasizes corporate and partn ship accounting. 3 Cr. (3-0). *Prerequisite: ACC 112 or Division permission.*

ACC 125
INCOME TAX ACCOUNTING
Familiarizes students with the different rules and regulations regarding Federal and Pennsylvania state income taxes. Tax deductions, credits, exemptions, rates, computation of all types of taxes, and the vario forms students should be familiar with are stressed. 3 Cr. (3-0).

ACC 230
MANAGERIAL ACCOUNTING
Presents the analytic skills needed to make decisions based on financ information. Emphasizes the organization of data for decisions, develop ment of sound measurements, and the use of accounting for control and evaluation of economic activity. De-emphasizes the use of financial a counting using the transaction recording process. Course assumes t student has a thorough knowledge of accounting principles and is prepared to analyze the financial summarizations. 3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 231
COST ACCOUNTING
Includes transactions of a manufacturing business, finding unit costs, fi ding total cost after processing, and profit through distribution. Thr types of cost accounting systems will be discussed in detail: Job Cost, Process Cost, and Standard Cost. 3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 232
INTERMEDIATE ACCOUNTING I
Detailed in-depth study of financial statements and the fundamental a counting processes. Includes an examination of working capital.
3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 244
INTERMEDIATE ACCOUNTING II
Deals with noncurrent assets and liabilities, stockholders' equity, a various analytical accounting processes. Includes an in-depth study of funds statement. 3 Cr. (3-0). *Prerequisite: ACC 232 or Division permissio*

ACC 246
AUDITING
Offers a thorough knowledge of auditing through the application of prin ciples and stresses adherence to auditing standards. Internal controls, t field of auditing and public accounting, audit techniques, audit wo papers, verification of accounts, reporting the audit and internal auditing are discussed. 3 Cr. (3-0). *Prerequisites: ACC 112, ACC 122.*

ADVERTISING (ADV)

V 101
NCIPLES OF ADVERTISING
rvey of the history of American advertising and advertising in relation he economy. Organization and management of advertising; its place otal marketing as well as retail and national advertising; sociological ects; creative production. 3 Cr. (3-0).

ADVERTISING ART (ART)

T 111
SIC DRAWING
basics of observing and perceiving objects in space. Drawing objects arious ways using a variety of techniques. 3 Cr. (1-6).

T 121
SIC PAINTING
introduction to painting. Emphasizes color, value, form, texture. Emsizes representational painting but experimentation is encouraged. 3 (1-6). *Prerequisites: ART 111, ART 231 or permission of the instructor.*

T 231
LOR AND DESIGN
oduction to two dimensional design and color. Studies from nature — the properties of color, shape, form and space — lead to the overy of individual solutions to problems in two dimensional design. 3 (1-6).

T 232
TTERING AND LAYOUT
tudy of the elements and design of layouts for advertising art. The ory, anatomy and design of letters. Emphasizes the proper use of letng in advertising. 3 Cr. (1-6).

T 233
RODUCTION TO ART
asic course. Emphasizes the study and understanding of the visual ns of art, painting, sculpture and architecture. Includes functions of ign, techniques of execution, and basic principles concerning the al arts. Also covers the study of major periods of art: Egyptian, co-Roman, Medieval, Renaissance and Baroque, nineteenth and ntieth centuries. 3 Cr. (3-0).

T 241
DIA AND TECHNIQUES
ture and demonstrations are used to present the various media and hniques used in advertising art, including gouache, watercolor, wash, tel, pen and ink, scratchboard, airbrush and art aids. 3 Cr. (1-6). *Preresite: Permission of instructor.*

T 242
VERTISING DESIGN
jects in poster design, brochures, illustration and other forms of ertising and editorial media. Includes basic techniques and processes d in preparation of advertising and graphic art for the printer. The owing skills are involved: illustration, paste-up, specifying type, rlays, lettering, and layout. 3 Cr. (1-6). *Prerequisite: ART 232, Permis- of instructor.*

AGRIBUSINESS (AGB)

AGB 111
INTRODUCTION TO AGRICULTURAL BUSINESS
An overview of the broad field of agribusiness and specialized aspects of the field. Field trips to different types of agribusinesses and farms give students a first-hand view of the industry to help them clarify their career goals. In addition, the student will develop a planned agribusiness internship/co-op experience. 4 Cr. (3-3).

AGB 112
SOILS, FERTILIZER, AND AGRICULTURAL CHEMICALS
The formation of and the physical and biological properties of soil. Emphasizes soil conditions that affect crop production. Composition of fertilizer, its manufacture and use. Includes soil sampling, test report analysis, plant deficiencies, and the reactions of nutrients within plants. Types of chemicals and how to use and apply them properly. 4 Cr. (3-3).

AGB 123
FIELD AND FORAGE CROP PRODUCTION
A study of basic principles related to the culture and production of grain crops and forage. 3 Cr. (2-3).

AGB 124
AGRICULTURAL FINANCING
The principles of financing as applied to agribusiness. A look at the many sources of credit—private and governmental. Obtaining credit and its use. 3 Cr. (3-0).

AGB 125
DAIRY PRODUCTION
The feeding, management, breeding, milking, disease control, and housing of dairy cattle. 3 Cr. (2-3).

AGB 236
ANIMAL PRODUCTION
The basic practical aspects of managing livestock production. Includes beef, swine, sheep, and poultry. 4 Cr. (3-3).

AGB 237
SPECIAL TOPICS IN AGRIBUSINESS
Investigation and study — individually and by the class — in special topics related to the objectives of the Agribusiness program. Examples of topics: Conservation, Horticulture, and Forestry. 3 Cr. (2-3).

AGB 240
INTERNSHIP/CO-OP
Practical experience in a planned, supervised program of work with an agricultural business or farming enterprise. 3 Cr. 200 Hrs.

AGB 248
FARM MANAGEMENT
The fundamental principles of management and economics with the emphasis on farm applications. Farm records, their analysis and use in determining progress and farm planning. 3 Cr. (3-0).

AGB 249
AGRICULTURAL SALES AND SERVICE
An introduction to the factors involved in marketing. Includes the psychology of selling, pricing, and presenting the product. Supply and demand, new concepts in marketing, the relationship of customer service to growth. 3 Cr. (3-0).

AIR CONDITIONING AND REFRIGERATION (ACR)

ACR 231
THEORY AND OPERATION OF AIR CONDITIONING AND HEATING SYSTEMS
Advanced course in the design of all air systems, air and water systems, all water systems, central and room air conditioners and heat pumps. Schematic drawings of these systems, operating conditions, pressure, temperature, etc. Instruction in the sizing of duct and correct duct design (as recommended by ASHRA). 4 Cr. (3-3). *Prerequisites: ACR 521, ACR 522.*

ACR 232
INSTALLATION AND SERVICE PROBLEMS—AIR CONDITIONING
Correct methods of installing air conditioning equipment; duct design and sizing to assure proper air flow; installation of duct systems. Electrical and electrical component failure, including refrigeration breakdowns. 5 Cr. (3-6). *Prerequisites: ACR 521, ACR 522. Corequisite: ACR 231.*

ACR 241
AIR MOVEMENT AND VENTILATION
Identification and normal applications of various types of air conditioning equipment. Methods used to take apart and reassemble evaporative coolers; exhaust fans; insulation as a thermal blanket and as soundproofing. 4 Cr. (3-3). *Prerequisite: PHS 500.*

ACR 242
SOLAR HEAT/ENERGY CONSERVATION
Methods of delivering heat to an area, primarily with solar heat collector panels. Methods of heat transfer in space heating and heating domestic hot water. Includes the latest scientific and research data on energy conservation. 3 Cr. (2-3).

ACR 250
AIR CONDITIONING/REFRIGERATION WORK EXPERIENCE
Planned, supervised work experience in the air conditioning/refrigeration field. Students must submit a written report and are evaluated by employer and coordinator. All supervision should be through the employer. 1 Cr. 80 Hrs.

ACR 511
INTRODUCTION TO REFRIGERATION
Lectures, demonstrations, and lab assignments introduce concepts of basic refrigeration. Emphasizes the mechanical refrigeration system — including condenser, evaporators, compressor, refrigerant control devices, refrigerants, test equipment and service techniques. 5 Cr. (3-6).

ACR 521
COMMERCIAL REFRIGERATION SYSTEMS
Various types of installations — includes characteristics of items to be cooled in relationship to temperature, humidity, and air circulation. Includes techniques for balancing systems, system capacity, and use of heat load charts. 4 Cr. (3-3). *Prerequisites: ACR 511, ELT 531. Corequisite: ELT 541.*

ACR 522
INSTALLATION AND SERVICE PROBLEMS—COMMERCIAL REFRIGERATION
Various types of installation procedures and service techniques used in commercial refrigeration. Includes piping design, codes, preventive maintenance, and system accessories. 4 Cr. (3-3). *Prerequisite: ACR 511. Corequisites: ELT 541, ACR 521.*

ARCHITECTURAL TECHNOLOGY (ARC)

ARC 102
BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology. Use and care of drawing instruments and media. Lettering, orthographic projection principles, preliminary drawing and sketching, preparation working drawings, exterior and interior finish work, detailing cabinet and mill work. 3 Cr. (2-3).

ARC 111
STATICS
The study of forces and equilibrium as related to building support columns and beams. Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design properties of areas. 3 Cr. (3-0).

ARC 112
ARCHITECTURAL GRAPHICS I
Basic architectural graphic media; projection drawings, axonometrics and perspective; color and texture; introduction to the architectural model; basic vocabulary of architectural drawings; composition, space, form value, texture, shades, shadows. 4 Cr. (1-9).

ARC 115
WORKING DRAWINGS - RESIDENTIAL
Laboratory practice and theory in producing residential architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation, quality. 3 Cr. (1-6).

ARC 116
BUILDING MATERIALS I
A study of the typical materials of building construction, their production, properties, use and performance in various combinations and methods of construction. 2 Cr. (2-0).

ARC 121
STRUCTURES - WOOD
Theory and design of wood and timber structures. Identification characteristics and classifications of wood. Working stresses; design of beams, columns, joints, rafters, planks, laminated sections; timber connections, fastenings and their working properties; laminated lumber shapes. 2 Cr. (2-0).

ARC 122
ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white and color problems. Emphasis on developing techniques, style, presentation. 3 Cr. (1-6).

ARC 125
WORKING DRAWINGS - COMMERCIAL
Laboratory practice and theory in producing non-residentiel architectural working drawings. Emphasizes technique in preparing drawings, content, lettering, line quality, and presentation quality. 3 Cr. (1-6).

ARC 232
BUILDING MATERIALS II
Subsurface exploration and foundations. Water and damp-proofing methods and materials for masonry construction, concrete walls, slabs. Wall, floor, and roof systems; the curtain wall; fireproofing; building codes; architectural hardware. 3 Cr. (3-0). *Prerequisite: ARC 116.*

ARC 233
BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air conditioning, and control systems. Sources and design of water supply systems; sanitary and storm systems. Computation of plumbing, heating, and cooling loads. Cr. (3-0).

RC 236
ESIGN STUDIO I
roduction to the relation of space and function to the environmental eds of people. Application of principles and methods in solving design oblems. Includes identification of function, data collection, site alysis, and programming. Development of visual and graphic skills and hniques. 5 Cr. (2-9).

RC 237
MINAR IN ARCHITECTURAL HISTORY
overview of Western art emphasizing architecture from Egypt to conmporary international styles. The course emphasizes nineteenth and entieth century architects and their work. 5 Cr. (5-0).

RC 238
TRUCTURES - STEEL
e theory and design of structural components in steel: beams, colnns, connections, joists, and trusses. A study of the factors involved in ecting a structural framing system in architecture and the use of the SC Manual. 3 Cr. (3-0).

RC 242
UILDING EQUIPMENT II
eory and design of electrical service distribution systems. Selection of ctrical equipment, and fixtures. Electrical heating design. Theory and easurement of light and sound; vertical transportation systems; sound stems. 3 Cr. (3-0).

RC 244
ROFESSIONAL ADMINISTRATION AND CONTRACT DCUMENTS
chitectural registration, professional organization, ethics; types of aritectural service. Contract law; bonds, liens; codes; insurance; bidding ocedures; estimating; specification writing. Supervision and adnistration of construction. 3 Cr. (3-0).

RC 246
ESIGN STUDIO II
vironmental systems (ventilation, etc.), their analysis and integration in e design process. The application of design theory and methods in a eative design project. The project will also involve site analysis and anning, programming and program analysis of more complex problems. Cr. (2-12).

RC 247
TRUCTURES - CONCRETE
he theory and design of reinforced concrete: beams, columns, slabs, otings, retaining walls. A study of structural framing systems used in nforced concrete buildings. 3 Cr. (3-0).

AUTO BODY REPAIR (ABC)

BC 713
ASIC AUTO BODY (8 weeks)
asic theory and practice in trade fundamentals; body and chassis components; sanding; masking. 7 Cr. (8-16).

BC 714
IETAL WORK (8 weeks)
etal work; gas welding; metal stretching and shrinking; fasteners; veting. 7 Cr. (8-16).

BC 723
UTO BODY MAINTENANCE (8 weeks)
xterior and interior cleaning, water and air leaks, rattles, trim work. Cr. (8-16). *Prerequisites: ABC 713, ABC 714.*

ABC 724
PANEL ALIGNMENT (8 weeks)
Panel alignment; front and rear suspension alignment, frame alignment. 7 Cr. (8-16). *Prerequisite: ABC 723.*

ABC 833
METAL WORK AND FILLING (8 weeks)
Straightening metal, panel fabrication, panel replacement; use of fillers. 7 Cr. (8-16). *Prerequisites: ABC 713, ABC 714, ABC 723, ABC 724.*

ABC 834
PAINTING (8 weeks)
Surface preparation, paint application, paint problems, paint equipment. 7 Cr. (8-16). *Prerequisite: ABC 833.*

ABC 843
TOOLS, EQUIPMENT AND COLLISION REPAIRS (8 weeks)
Frame gauges, frame clamps, hydraulic equipment, hand tools and power tools. 7 Cr. (8-16). *Prerequisites: ABC 713, ABC 714, ABC 723, ABC 724, ABC 833, ABC 834.*

ABC 844
PAINTING AND ESTIMATING (8 weeks)
Collision damage, damage appraisal, repair procedures and techniques. 7 Cr. (8-16). *Prerequisite: ABC 843.*

AUTOMOTIVE (AMT)

AMT 510
PRINCIPLES OF ENGINE SYSTEMS I (8 weeks)
Operating principles of internal combustion engines. Gasoline and diesel engines, including two and four stroke cycle principles and precision measuring tools. Engine systems covered include: fuel, emission control, lubrication, compression, cooling, valve, and exhaust. Introduction to ignition. System troubleshooting emphasizing advanced fuel system components and emission controls. Fundamentals of fuel injection. Preparation for external engine repairs and tune-up work. 6 Cr. (7-15).

AMT 511
PRINCIPLES OF ENGINE SYSTEMS II (8 weeks)
Fundamentals of electricity and magnetism. Ohm's Law and electron theory. Operating principles of engine electrical systems including: charging, cranking, ignition, instrument and computer controls. Fuel and emission control theory and the effects of ignition systems on engine performance. System analysis emphasizing electrical systems. Prepares students for engine tune-up and/or performance analysis work, including engine electrical repairs. 6 Cr. (7-15).

AMT 520
PRINCIPLES OF CHASSIS SYSTEMS (8 weeks)
Fundamentals of automotive hydraulics. Theory and basic service techniques in brake systems, steering, suspension, and chassis electrical systems. Wheel balancing, use of brake lathe, tire service methods, introduction to wheel alignment. 6 Cr. (7-15).

AMT 521
PRINCIPLES OF POWER TRAIN AND ACCESSORIES (8 weeks)
Theory and basic service techniques in standard transmissions, clutches, U-joints, C-V joints, drive shafts, axles, transaxles, and differentials. Introduction to air conditioning, heating and selected accessory systems. Overview of automatic transmission operation. 6 Cr. (7-15).

AMT 630
POWER TRAIN AND ACCESSORY SERVICE (8 weeks)
Procedures, techniques and special tools for service and repair of common standard transmissions, transaxles, differentials, U-joints and other selected power train components. Repair of air conditioners, window regulators, and other selected accessories. Introduction to Automatic Transmission Service. 6 Cr. (6-18). *Prerequisite: AMT 521.*

AMT 631
ENGINE SYSTEM SERVICE (8 weeks)
Procedures, techniques and test instruments used for tune-up, minor engine repairs, servicing emission controls, engine electrical repairs, and general under the hood service. Use of oscilloscope, electrical meters, and chassis dynamometer for problem diagnosis. 6 Cr. (6-18). *Prerequisites: AMT 510 and AMT 511.*

AMT 640
CHASSIS SYSTEMS SERVICE (8 weeks)
Procedures, techniques, and special tools used for common repairs of brakes, suspension, exhaust and chassis electrical systems. Wheel balancing and tire service. Steering repairs. Introduction to Wheel Alignment Service. Study of State Inspection Safety Code. Emphasis on State Inspection Repairs. 6 Cr. (6-18). *Prerequisite: AMT 520.*

AMT 641
AUTOMATIC TRANSMISSION AND AIR CONDITIONING SERVICE (8 weeks)
Procedures, techniques and special tools for service and repair of automatic transmissions and air conditioning systems. Use of pressure gauges for trouble diagnosis. Use of automatic transmission test bench. Repair of selected special power train components. 6 Cr. (6-18). *Prerequisite: AMT 630 or Division permission.*

AMT 642
ENGINE AND ELECTRICAL OVERHAUL (8 weeks)
Procedures and techniques for engine overhaul. Includes valve and head work. Repair of selected electrical units including starters, alternators, and distributors. Troubleshooting engine problems using special equipment including the oscilloscope, chassis dynamometer, electrical meters, and infra-red exhaust gas analyzer. Advanced fuel system service and adjustments. Includes gasoline and fuel injection on selected systems. 6 Cr. (6-18). *Prerequisite: AMT 511 or Division permission.*

AMT 643
WHEEL ALIGNMENT AND ADVANCED CHASSIS SERVICE (8 weeks)
Methods of wheel alignment and balance. Use of various types of alignment racks and instruments. Experience in diagnosing steering, alignment, and suspension problems. Procedures for overhauling power steering units. Repair or replacement of selected special steering and suspension components. 6 Cr. (6-18). *Prerequisite: AMT 520 or Division permission.*

AVIATION (APC)

Lecture and lab hours shown are for an entire semester.

APC 513
BASIC ELECTRICITY
Basic electrical theory as it applies to Ohm's Law. Application of AC-DC circuits. Use of electrical measuring instruments and diagrams. Principles of aircraft electrical components and power systems. 3 Cr. (45-33).

APC 514
FEDERAL AIR REGULATIONS, RECORDS, AND PUBLICATIONS
Federal aviation regulations under parts 43, 65, and 145 as they apply to the privileges and limitations of the mechanic. The use of aircraft maintenance publications, records, and forms. 2 Cr. (24-17).

APC 515
MATERIAL AND PROCESSES
An introduction to precision measurement equipment. Identification and selection of aircraft hardware and materials. The process of heat treating and inspecting materials by visual and non-destructive test methods. 3 Cr. (38-38).

APC 516
AIRCRAFT SERVICING/FLUIDLINERS AND FITTINGS
Identification of aircraft fuel and lubricants, ground operations movement, security and safety precautions necessary with aircraft. Includes the secretion and use of cleaning materials, and procedures for corrosion control. The fabrication and installation of rigid and flexible fluid lines and fittings. 3 Cr. (31-56).

APC 517
WEIGHT AND BALANCE/PHYSICS
The procedure for weighing aircraft, computing the various weights for proper balance and recording this data. Physics topics include the principles of simple machines, fluid and heat. 2 Cr. (21-25).

APC 518
TURBINE ENGINES
Theory and operating principles of aircraft gas turbine engines and the functions of the engine components. 3 Cr. (35-45). *Prerequisites: APC 513, APC 514, APC 515, APC 516. Corequisites: APC 517, MTH 515.*

APC 522
ENGINE IGNITION SYSTEMS
The inspection, service, troubleshooting, repair and theory of reciprocating and turbine engine ignition systems. Includes various related components. 3 Cr. (30-39). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515. Corequisite: EDT 104.*

APC 523
ENGINE INDUCTION AND EXHAUST SYSTEMS
Covers engine induction, ice and rain control, heat exchanges, superchargers, and turbo chargers, and air intake and induction manifolds. Includes the theory, inspection, troubleshooting and repair of these components. Engine exhaust systems and their components are covered. Cr. (16-26). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515. Corequisite: EDT 104.*

APC 524
ENGINE FUEL SYSTEMS
Engine fuel systems including the inspection, service, troubleshooting, and repair of engine fuel pumps and related components. Also covers reciprocating and turbine engine fuel metering systems. 3 Cr. (28-40 *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 51 Corequisite: EDT 104.*

APC 525
PROPELLERS
Theory, operating principles and maintenance practices for fixed pitch and constant speed propellers. Also covers propeller governing and synchronizing system, ICR control, and their related functions. 3 C (38-47). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 51 MTH 515. Corequisite: EDT 104.*

APC 526
RECIPROCATING ENGINES AND ENGINE INSPECTION
Reciprocating engines including operating principles, nomenclature and inspection of parts and overhaul. The installation and adjustment of magnetos, fuel metering components, propeller and other component necessary for the operation of the engine. Inspection necessary for th safe operation of the engine. 7 Cr. (64-152). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515. Corequisite: EDT 104.*

C 633
GINE COOLING AND LUBRICATING
ails the inspection, service and repair of engine cooling and lubricating tems and components. 4 Cr. (44-39). *Prerequisites: APC 513, APC 514, C 515, APC 516, APC 517, MTH 515, EDT 104.*

C 634
GINE FIRE PROTECTION AND INSTRUMENTS
erating principles and service of airframe fire warning and extinguishing systems and smoke and carbon monoxide detection systems. tallation, operation, repair of airframe instrument systems. 2 Cr. -19). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, TH 515, EDT 104.*

C 635
GINE ELECTRICAL
e operation, installation and repair of engine electrical components. Inides wiring, controls, switches, protective devices, generating and rting units. 3 Cr. (44-34). *Prerequisites: APC 513, APC 514, APC 515, C 516, APC 517, MTH 515, EDT 104.*

C 636
RCRAFT ELECTRICAL
udy and repair of airframe electrical circuits and components. Includes ring, controls, switches, protective devices, lighting systems. AC/DC cuits and related electrical accessories. 4 Cr. (46-30). *Prerequisites: C 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 104.*

C 637
RCRAFT COVERING, FINISHES AND WELDING
e use of various fabrics in the construction of aircraft and the application of paints and dope. The theory and practice of welding and welding ethods, and the safe use of welding equipment. 3 Cr. (34-56). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 4.*

C 638
RCRAFT ASSEMBLY AND RIGGING/INSPECTION
e theory of flight including fixed wing aircraft and helicopter. Includes sembly of aircraft, installation and rigging controls and surfaces, balanng movable surfaces and alignment checks. Performance of airframe worthiness inspections and conformity. 3 Cr. (28-56). *Prerequisites: C 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 104.*

C 642
RCRAFT SHEET METAL AND WOOD STRUCTURE
tails methods for the use of rivets, fasteners, and metal working prosses used in construction and repair of aircraft. Includes the inspection d repair of plastics, honey comb, and laminated structure. Also covers ood identification, inspection and repair. 6 Cr. (58-104). *Prerequisites: C 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 104.*

C 643
RCRAFT LANDING GEAR, HYDRAULICS, PNEUMATICS AND OSITION WARNING
he inspection, operation, service and repair of aircraft landing gears, ydraulics and pneumatics. Landing gears including retraction systems, ock struts, brakes, wheels, tires and steering systems. Hydraulics and eumatics including power and control systems, pumps, actuators, and ecial equipment. Position and warning systems including speed and ke-off, anti-skid, and landing gear position units. 6 Cr. (74-88). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 04.*

APC 644
AIRCRAFT COMMUNICATIONS, NAVIGATION AND INSTRUMENTS
Inspection, checks, and service of auto pilot, approach control, communication, and navigation systems as well as antennas. Includes the installation, inspection and service of aircraft instruments and their systems. 2 Cr. (30-22). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 104.*

APC 645
AIRCRAFT ATMOSPHERE CONTROL AND ICE/RAIN CONTROL
The various types of atmosphere control systems. Includes pressurization, heating, cooling, and ventilation as well as oxygen systems. Also covers the various pneumatic and electrical operated ICR and rain control systems. 3 Cr. (37-15). *Prerequisites: APC 513, APC 514, APC 515, APC 516, APC 517, MTH 515, EDT 104.*

BIOLOGY (BIO)

BIO 110
APPLIED HUMAN PHYSIOLOGY
Study of human physiology and anatomy. Includes cells, tissues, and tumors, and digestive, excretory, cardiovascular, and endocrine systems. Other body systems as time permits. Diseases and immunology. 3 Cr. (3-0).

BIO 111
BASIC BOTANY (HORTICULTURE)
Fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics. 3 Cr. (2-3).

BIO 113
GENERAL BIOLOGY I
Fundamental processes of living organisms. Main concepts of biology — beginning with considerations of the chemical basis of life. Structure, function, and evolution of cells. 4 Cr. (3-3).

BIO 115
HUMAN ANATOMY AND PHYSIOLOGY I
A medically oriented study of the structure and function of the human body. For students specializing in nursing, medical technology, and biology. Lecture and laboratory. 4 Cr. (3-3).

BIO 121
BASIC ANATOMY AND PHYSIOLOGY
Human anatomy and physiology; cells, tissues, and tumors; nervous, excretory, reproductive and endocrine systems; diseases; principles of chemistry; microbiology; and physics. For students who need a basic background in anatomy and physiology (e.g., Secretarial Science—Medical). 3 Cr. (3-0).

BIO 123
GENERAL BIOLOGY II
Continuation of BIO 113. Structure, function, interrelationships, and evolution of organisms. 4 Cr. (3-3). *Prerequisite: BIO 113 or permission of the instructor.*

BIO 125
HUMAN ANATOMY AND PHYSIOLOGY II
Continuation of BIO 115. 4 Cr. (3-3). *Prerequisite: BIO 115.*

BIO 201
MICROBIOLOGY
Biology of microorganisms. Includes bacteria, rickettsiae, viruses, fungi, protozoa, and helminths. Relationship between microorganisms and higher forms of life. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 203
GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 208
ECOLOGY
Basic principles of the relationships between plants and animals and their environments. Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology. Local terrestrial and aquatic environments. 4 Cr. (3-3). *Prerequisite: One semester of college level biology.*

BIO 290
SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

BROADCASTING (BRC)

BRC 114
AUDIO IN MEDIA
An introductory course in the use of audio equipment in mass communications. Emphasizes components of an audio production chain and how these components can be used for various audio applications. Provides "hands-on" experience with tape machines, turntables, mixing boards, microphones, and editing equipment. Includes proper maintenance of equipment. 3 Cr. (3-0).

BRC 126
INTRODUCTION TO RADIO STATION OPERATION
Working as part of the staff of an operational radio station, students do basic production, writing and announcing for their department and are assigned at least one announcing shift per week. Workshops on refined production techniques will be held both within departments and for station staff. Emphasizes "hands-on" application of theories and skills learned in the introductory audio course. 2 Cr. (0-6).
Prerequisite: BRC 114.

BRC 223
BROADCAST WRITING
This practical writing course combines the theory of writing for aural and visual media with "hands-on" experience. Includes the basic elements of audio and video copy, and explores in some detail such applications as news, promotional announcements and program length copy. 3 Cr. (3-0). *Prerequisites: BRC 114, JOU 111.*

BRC 233
BROADCAST ANNOUNCING
Students develop announcing techniques for many of the jobs in the broadcast industry and allied fields. Includes announcing of news, sports, interviews, musical selections and shows, and instructional/industrial programming. Emphasizes the principles of communication underlying those skills. 3 Cr. (3-0). *Prerequisites: BRC 114 and ENL 202.*

BRC 236
RADIO STATION OPERATION AND MANAGEMENT
Students assume a management position and a subordinate position as they operate and manage the college radio station. Students run and attend department meetings. Weekly student staff meetings are held to assess staff performance and analyze achievements and needs. Periodic workshops develop production skills for remotes, develop management and employee skills, and sharpen interview/cover letter skills. 2 Cr. (0-6 *Prerequisite: BRC 126.*

BRC 242
BROADCAST MANAGEMENT PRACTICUM
Concentrated practical experience as a supervisor in a small radio station—the College's station. Includes weekly lecture/seminar session which develops skills in conducting station staff meetings and managing broadcast sales. Students supervise and assist in training other students in various aspects of radio station operation and complete a station project with the help of their staff. 3 Cr. (1-6). *Prerequisite: BRC 236.*

BUSINESS MANAGEMENT (MGT)

MGT 110
PRINCIPLES OF BUSINESS
Introduction to the various types of business organizations, from a legal as well as administrative viewpoint. Emphasizes terminology as applied to such fields as economics, finance, marketing, and business law. Includes basic concepts of management — from the establishment of objectives through planning, organizing, policy formulation, taking action, measuring and evaluating, and performance improvement. 3 Cr. (3-0).

MGT 111
BUSINESS MATHEMATICS
Fundamentals of mathematics as applied in addition, subtraction, multiplication, and division. The use of percent, interest, depreciation and installment buying in the modern business world. 3 Cr. (3-0).

MGT 125
FINANCE
Includes valuation principles, risk assessment, analysis of financial statements, working capital management, alternate financing strategies, capital budgeting, optimum financial decision making, and analysis involving the cost of capital. Includes the analysis of current market trends and projections. 3 Cr. (3-0). *Prerequisites: ACC 112, ACC 122 or Division permission.*

MGT 230
BUSINESS COMMUNICATIONS
Application of communication skills: listening, reading, writing, and speaking accurately, briefly, and clearly. Students are trained to write all types of business communications. Includes the techniques of person and interpersonal relations to prepare the student to perform well and to advance in a career. 3 Cr. (3-0).

MGT 231
BUSINESS LAW I
Introduction to the judicial process, the social implications of law, the roles of government and labor unions in the formulation of business law. In-depth study of rights and obligations as they apply to contract law. 3 Cr. (3-0).

MGT 235
BUSINESS PSYCHOLOGY
Psychological principles as applied in modern business. Encourages the proper attitudes toward work and people. Gives the student an awareness of human relations skills needed to be an efficient employee and an effective leader, both on and off the job. 3 Cr. (3-0).

T 237
NKING AND INVESTMENTS
oduction to banking and investments. Explains how institutions can t meet the needs of society. Provides a foundation for understanding w banks operate today, and why and how they have evolved to their sent state. 3 Cr. (3-0).

T 238
GURANCE
ucture and practices of the insurance field. The uses of various types insurance policies and their importance for personal and business cess are stressed. 3 Cr. (3-0).

T 241
SINESS LAW II
sed on the objectives of Business Law I. Provides an in-depth study of laws of agency and employment relations, commercial paper, perial property, bailments, and sales. 3 Cr. (3-0). *Prerequisite: MGT 231.*

T 247
ALL BUSINESS MANAGEMENT
oduction to the problems of owning and operating a business of one's n. Necessary personal characteristics, problems involved in buying d initiating a new business, and the activities of management are ered. 3 Cr. (3-0).

T 248
PERVISION AND HUMAN RELATIONS
ties and responsibilities of the first-line supervisor and manager who ds up to a middle-level management position are studied from a navioral point of view and in relation to how he/she influences others accomplish organizational goals. Includes motivation, job enrichment, es of leadership, and interpersonal relationships. 3 Cr. (3-0). *Prerequisite: MGT 110 or Division permission.*

CARPENTRY (BCT, CNC)

T 111
OODWORKING FOR CARPENTERS
sic principles and skills used in hand and machine woodworking operans; special projects. 4 Cr. (2-6).

T 112
ONSTRUCTION CARPENTRY
sic principles of frame construction: foundations and concrete formrk, types of building frames, strength of beams and girders, structural eathing and house details. Ideas and trends in construction methods d techniques. 4 Cr. (2-6).

T 121
STIMATING AND BLUEPRINTS
troduction — types of drawings. Lines, marks, symbols, conventions, ales, dimensions; material quantities and cost estimating. 2 Cr. (2-0).

T 122
LOCK CONSTRUCTION
ock laying skills in lab; practical work. Classroom instruction covers aterials, types and sizes of blocks, principles of cost estimation. Cr. (2-12).

T 231
OOF-FRAMING THEORY
inciples of rafter layout, use of framing square, problems of roof framg and construction, types of roofs and rafters. 3 Cr. (3-0).

BCT 232
BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy; following architect's drawings; chimney, fireplace and wall projects. 5 Cr. (2-9).

BCT 241
ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry. Modern finishing materials and methods used to apply finishing materials; exterior and interior trim. Millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material; trim and moldings; built-in cabinet work; stairbuilding. School sponsored construction work. 4 Cr. (2-6).

BCT 242
BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction and solution of practical construction problems. Special advanced projects, campus construction work including house construction projects. 6 Cr. (3-9).

BCT 243
CONCRETE CONSTRUCTION
Principles of concrete design — water-cement ratio, proportions of ingredients, reinforced concrete, concrete footers and walls, finishing with hand and power trowel equipment, proper methods of curing and testing concrete. 3 Cr. (2-3).

BCT 254
CARPENTRY FOR THE TRADES
Theory and laboratory assignments in basic residential and commercial carpentry. The technical aspects of frame construction, construction materials, use of carpentry tools and equipment, and job safety. Methods and techniques of applying carpentry skills in the trade areas. 2 Cr. (1-3).

CNC 711
SURVEYING, LAYOUT & BLUEPRINT READING (8 weeks)
Interpretation of building codes, specifications, and blueprints; types and erection of batter boards. Use, care and operation of builder's level, simple surveys, 3-4-5 triangle calculations. Determination of depth of excavation. 2 Cr. (3-3).

CNC 712
CONCRETE AND BLOCK (8 weeks)
Study and application of methods and materials used in laying out and building block and concrete walls. Principles used in forming, pouring and finishing concrete footings, reinforced concrete and concrete slabs. Introduction to appropriate tools and instruction in their proper use and care. 4 Cr. (3-16).

CNC 713
BRICK AND STONE (8 weeks)
Study of brick and stone products currently used in construction work. Emphasizes common methods. Students work on shop projects and, when possible, on permanent projects outside the shop. 6 Cr. (6-19).

CNC 721
FRAMING AND SHEATHING (8 weeks)
Principles and applications of framing and sheathing. Shop projects and outside projects. Emphasizes new and traditional materials used in this phase of construction. 6 Cr. (6-19).

CNC 722
EXTERIOR FINISH (8 weeks)
Develops skills in the selection and use of siding and roofing materials. Experience in door and window framing, exterior trim, cornice work, insulation materials and methods. 6 Cr. (6-19).

CNC 831
INTERIOR FINISH (8 weeks)
Instruction in the selection and application of materials used for interior walls, ceilings and floors. Students use these materials, and the tools associated with them, in shop and permanent installations. 6 Cr. (6-16).

CNC 832
INTERIOR TRIM (8 weeks)
Includes door hanging, moldings and trim, built-in features, stair building and kitchen cabinets. Offers the student a broad background in interior trim and, when possible, provides experience in the use of the methods and materials studied. 6 Cr. (6-16).

CNC 833
BLUEPRINTS AND SPECIFICATIONS
Techniques in reading and interpreting blueprints and specifications. Instruction in reading plan views, elevations, and details typical of working drawings. Reviews the math principles needed to understand and use these drawings. Stresses specifications and their relationship to working drawings. 3 Cr. (3-0). *Prerequisites: CNC 712, CNC 713, CNC 721, CNC 722.*

CNC 841
SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas — from wall and floor coverings through fundamental electrical wiring and plumbing and heating. Instruction and practical experience. 4 Cr. (3-16).

CNC 842
PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Use of the knowledge and skills acquired in the construction curriculum. Supervised permanent projects on and around campus. When practical, the student participates in all stages of a project — from planning through construction. 4 Cr. (1-18).

CNC 843
BUILDING TRADES ESTIMATING (8 weeks)
Study of processes and procedures gives working knowledge of various trades. Students learn how to figure realistic construction costs for completed projects. Includes both residential and commercial estimating and emphasizes types of estimates and quantity take-offs. 3 Cr. (6-0). *Prerequisite: CNC 833.*

CNC 844
PERSONAL AND JOB ORIENTATION (8 weeks)
Introduction to practical techniques for self-evaluation. Stresses the importance of values, interests, personality, and attitude in determining work success. Emphasizes establishing realistic work goals and expectations based on the student's self-knowledge. Surveys problems the beginning worker faces preparing to take his/her place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 3 Cr. (6-0).

CHEMISTRY (CHM)

CHM 100
FUNDAMENTALS OF CHEMISTRY
Introduction to basic concepts of inorganic and organic chemistry. Essentially non-mathematical. For students who have never had chemistry or whose background is very weak. Prepares students for CHM 105 or CHM 111. 4 Cr. (3-3).

CHM 105
GENERAL ORGANIC CHEMISTRY
Introduction to the major classes of organic compounds. Includes brief review of some inorganic concepts in relation to organic reactions. For non-science students who need to fulfill a lab science requirement and for science students as an introduction to CHM 203. 4 Cr. (3-3). *Prerequisites: High school chemistry or permission of the instructor.*

CHM 107
GENERAL ORGANIC CHEMISTRY
Introduction to the major classes of organic compounds. Includes brief review of some inorganic concepts in relation to organic reactions. 3 Cr. (3-0). Cannot be used to satisfy lab science requirements. *Prerequisites: High school chemistry or permission of the instructor.*

CHM 111
GENERAL CHEMISTRY I
Principles of modern chemistry. Emphasizes inorganic aspects. For science majors and non-science students who need to fulfill a lab science requirement. Prepares students for CHM 121 or CHM 203. 4 Cr. (3-3 *Prerequisites: High school algebra or equivalent; high school chemistry desirable but not required.*

CHM 121
GENERAL CHEMISTRY II
Continuation of CHM 111. For science majors and non-science students who need to fulfill a lab science requirement — the latter may elect CHM 105 instead of CHM 121. 4 Cr. (3-3). *Prerequisites: CHM 111 or hig school chemistry with permission of the instructor.*

CHM 203
ORGANIC CHEMISTRY I
The major classes of organic compounds. Emphasizes molecular structure and reaction mechanisms. Intended for science majors. 4 Cr. (3-3). *Prerequisites: CHM 105 or CHM 111, or high school chemistry with permission of the instructor.*

CHM 204
ORGANIC CHEMISTRY II
Continuation of CHM 203. 4 Cr. (3-3). *Prerequisites: CHM 203 c equivalent.*

CHM 290
SPECIAL TOPICS IN CHEMISTRY
A flexible course to meet special needs or interests of science or non-science students. Lectures may be supplemented with lab work as needed. 1 to 4 Cr. *Prerequisite: Permission of the instructor.*

CIVIL ENGINEERING TECHNOLOGY (CET)

CET 111
MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials. Methods of testin and sampling construction materials. Applying knowledge of and data o materials in designing structures. 2 Cr. (2-0).

CET 112
ENGINEERING DRAWING
Use of engineering drawing instruments; lettering; geometric construc-tions; orthographic projection; dimensioning; sketching. Architectural drawing — including plans, elevations, details, and site plans. Structur drawing including uses and detailing for wood, concrete, and steel struc tures. 3 Cr. (1-6).

T 113
RODUCTORY SURVEYING
oduction to surveying; use and care of instruments. Simple surveys compass, transit, level and tape. Notekeeping; computations; aring planimetric map. 2 Cr. (1-3).

T 121
ANE SURVEYING
ory and practice of plane surveying; traverses and elementary ngulation; three-wire differential, trigonometric and reciprocal level- stadia and plane table surveys; adjustment of instruments; analytical metry for surveying. 4 Cr. (1-9). *Prerequisites: CET 113, MTH 103. Co- uisite: MTH 104.*

T 122
POGRAPHIC DRAWING & CARTOGRAPHY
of conventional signs in mapping. The construction of large-scale ographic maps, logical contouring, profiles, photographic and map in- retation. Methods of plotting, use and construction of small scale os, earth's coordinate system, map projections, enlargement and uction of maps, scribing techniques, photographic color separation, ography, thematic maps, reproduction, and processing. 3 Cr. (1-6). *requisite: CET 112.*

T 231
UTE SURVEYING
hway curves (horizontal and vertical); field stake out cross sections; e staking; determination of earthwork; plan and profile; profile level- ; polaris and solar observations for bearing; route location on ographic map. 4 Cr. (1-9). *Prerequisite: CET 121.*

T 232
IGIN, DISTRIBUTION & BEHAVIOR OF SOILS
logic origin of soils; minerals, rocks, rock structures, weathering, ciation, erosion and deposition. Distribution of soils in North America; idual, glacial and water-wind deposited soils. Soil characteristics and avior; engineering classification, volume-weight relationships, sical properties, supporting capabilities for foundation elements and mpling methods. 3 Cr. (2-3). *Prerequisite: MTH 104. Corequisite: S 100.*

T 233
ATICS
sic principles of statics; coplanar and non-coplanar force systems; fric- n; centroids and moments of inertia; hydrostatic pressures and loads. 3 (3-1). *Prerequisite: MTH 104.*

T 234
GHWAY ENGINEERING TECHNOLOGY
ghway systems, organization and planning; right-of-way; driver, vehi- and road characteristics; highway design, traffic engineering; inage; engineering economics; pavement design; construction and intenance. 3 Cr. (3-0).

T 241
OVANCED SURVEYING
rizontal and vertical control surveys; triangulation and level nets; three int solution; planning and estimating from topographic maps; state ane coordinate systems, public land surveys; boundary surveys, elec- nic distance measurement; theodolites. 3 Cr. (2-3). *Prerequisite: CET 1.*

T 242
UID MECHANICS
echanics of fluids; fluid flow in conduits and around bodies; liquid flow open channels; friction and energy loss; fluid measurements; pumps; nilitude and dimensional analysis. 3 Cr. (2-3). *Prerequisites: PHS 100, T 233.*

CET 243
STRENGTH OF MATERIALS
Engineering materials and properties; stress and deformation; shear and moment in beams; stresses in beams; beam design for wood and steel; beam deflection; statically indeterminate beams; combined stresses; column design. 3 Cr. (3-0). *Prerequisite: CET 233.*

CET 244
PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods; geometry of aerial photographs; stereoscopy; overlapping aerial photographs; aerial triangulation; flight planning; photographic principles, tilted aerial photos; cost estimation; contracts and specifications; remote sensing. 3 Cr. (2-3). *Prerequisite: CET 122.*

COMPUTER INFORMATION SYSTEMS (CSC)

CSC 102
INTRODUCTION TO MICROCOMPUTERS
Covers use of the microcomputer as a tool for solving practical problems. Introduces non-computer science students to computer technology concepts and the operation and management of a typical "personal" computer. Students will use application software for word processing and electronic spreadsheet analysis, and the BASIC language for programming computer solutions to a variety of problems. 3 Cr. (3-0).

CSC 103
INTRODUCTION TO COMPUTERS WITH FORTRAN
Presents data processing concepts, methods and applications through the medium of the FORTRAN IV programming language. Topics include computer system history, principles and operations, programming language structure, problem analysis and flowcharting, and computer solution of numerical problems using the FORTRAN IV language. 3 Cr. (3-0).

CSC 112
PROGRAMMING IN PASCAL
Thorough coverage of the PASCAL language and its implementation under RSTS/E on the PDP 11/70. The strong compatibility between PASCAL, Top-Down Design, and Structured Programming will be emphasized and integrated in all programming assignments. Programs will be assigned from a variety of disciplines in order to acquaint students with the power and versatility of the PASCAL language. 3 Cr. (3-0). *Corequisite: CSC 118.*

CSC 118
FUNDAMENTALS OF COMPUTER SCIENCE
Covers the terminology, concepts, system operating procedures and problem-solving techniques that are fundamental to the field of computer science and required for further coursework in programming languages and design techniques. Covers mainframe and microcomputer operation in depth. Special emphasis on developing the student's ability to understand as well as design the logical structures underlying a variety of data processing applications. 3 Cr. (3-0).

CSC 120
BUSINESS COMPUTER APPLICATIONS
Emphasizes the use of the computer in typical business applications. Concentrates on the use of computer-based information systems to provide information for effective management decision making. Includes database concepts, data entry, man/machine interaction and data retrieval concepts. The course will use both mini and microcomputers. 3 Cr. (3-0). *Recommended prerequisites: CSC 118 and ACC 112.*

CSC 125
DATA STRUCTURES
Covers stacks, queues, linked lists and trees. Data structures will first be introduced as abstract concepts, then their physical implementations and operations will be developed and applied. Includes basic techniques for design and analysis of efficient algorithms for internal and external sorting/merging/searching. Additional topics include hashing, dynamic storage allocation, data compaction and recursion. Students will write PASCAL application programs to implement data structures. 3 Cr. (3-0). *Prerequisite: CSC 112.*

CSC 128
COBOL PROGRAMMING I
Covers the COBOL computer language, language elements and division, program writing, execution, diagnostics, advanced programming concepts and techniques. Stresses documentation—including a written problem statement—any required formula development, printer spacing for chart layouts, and the appropriate terminology for programming, card/tape and/or disc record layout, internal memory requirements, and a program flowchart. 3 Cr. (3-0). *Prerequisite: CSC 118.*

CSC 230
COMPUTER SYSTEMS WITH ASSEMBLER
A survey of technical topics related to computer systems with the emphasis on the relationships between hardware architecture, system software and the assembly language. Includes an introduction to assembly language and the architecture of processors and storage systems. 3 Cr. (3-0). *Prerequisites: CSC 118 and a programming language.*

CSC 231
PROGRAMMING IN RPG
REPORT PROGRAM GENERATING (RPG) programming, including writing, compiling and executing RPG programs. The programs written for this course are based on business applications and business oriented problems. Topics include sequential disc files, indexed disc files, tables, arrays, subroutines and interactive programming techniques. 3 Cr. (3-0). *Prerequisites: CSC 118 and a programming language.*

CSC 232
PROGRAMMING IN BASIC
Covers the BASIC programming language in detail, adding to and developing concepts presented in CSC 118. Detailed discussion of the BASIC language, including operating procedures of a time-sharing system. Interactive programming techniques will be stressed through such topics as data conversion, string functions, sequential I/O, virtual I/O and record I/O. Programming techniques will be discussed. The course is geared to business data processing. A special project may be required. The course will use a mini or microcomputer. 3 Cr. (3-0). *Prerequisite: CSC 118.*

CSC 235
SYSTEMS ANALYSIS AND DESIGN METHODS
A systematic approach to the analysis and design of computer information systems. The course follows the systems development life cycle, emphasizing the system documentation tools and techniques used in each phase. Introduction to both classical and structured approaches for describing process flows, data flows, data structures, file designs, input and output designs and program specifications. Discussion includes information gathering and reporting activities and the transition from system design to initial operations. 3 Cr. (3-0). *Prerequisites: CSC 118 and CSC 128.*

CSC 238
COBOL PROGRAMMING II
Introduction to structures used to represent the logical relationship between elements of information and to the techniques used to work with information structures using tape and disc storage. Students examine how a complex computer programming task can be subdivided for maximum clarity, efficiency, and ease of maintenance and modification. The concept of programming style permeates most of the material presented. Careful verification of program operation and documentation of programs are emphasized. 3 Cr. (3-0). *Prerequisite: CSC 128.*

CSC 239
FORTRAN WITH PLOTTING
An introduction to FORTRAN language programming as applied to business and mathematics problems. Includes subprograms, table handling and the use of the plotter to draw graphics. 3 Cr. (3-0). *Prerequisites: CSC 118 and a programming language.*

CSC 240
FILE AND DATABASE PROCESSING
An introduction to application program development in a database environment. Emphasizes loading, modifying and querying the database using a host language and the DBMS query facilities. Also covers the logical-physical organization of data and random access devices. 3 Cr. (3-0). *Prerequisite: CSC 125.*

CSC 244
ADVANCED ASSEMBLY LANGUAGE
An in-depth study with advanced applications of the assembly language. Includes system software. This course will be of particular benefit to students interested in system programming. 3 Cr. (3-0). *Prerequisite: CSC 230.*

CSC 248
APPLIED SOFTWARE DEVELOPMENT
Integrates computer programming and systems development concepts principles and practices into a comprehensive system development project. A team approach is used to analyze, design and document realistic methods. Project scheduling and control techniques, format presentations and group dynamics are introduced into the solution of information systems problems. 3 Cr. (3-0). *Prerequisites: CSC 235, CSC 238.*

COMPUTER OPERATOR (COP)

COP 713
COMPUTER OPERATIONS I
An introduction to the operation of equipment found in computer installations. Topics include mounting tapes and disc packs, operating CRT's, line printers, console typewriters, card readers, keypunch machines, data recorders, card sorters, other unit record devices, forms handling equipment, electronic calculators, and duplicating machines. 6 Cr. (3-9).

COP 723
COMPUTER OPERATIONS II
This course is designed to train the student in both the non-physical and physical aspects of data processing operations. Emphasizes software operations, the use of EDP manuals, and the actual functioning of a computer center. Other topics include computer hardware, disc and tape processing, and recovery techniques for hardware and software errors. 4 Cr. (3-3). *Prerequisite: COP 713.*

COP 724
COMPUTER OPERATIONS INTERNSHIP
Students are assigned to computer installations for practical experience in computer operations. The student will receive on-the-job training in the College's computer center and/or various industrial locations. 2 Cr. (0-6). *Prerequisite: COP 713.*

COOPERATIVE EDUCATION (CED)

-op is taken in addition to the courses normally required for comple- of their program of study, students will register for co-op experience g the numbers below. If co-op experience is elected in place of the se(s) within a curriculum, the student will register for the course(s) to eplaced using the course identification number followed by the letter . Example: ABC 833C Metal Work and Filling. This indicates that the ent is seeking credit for ABC 833 through participating in a co-op ex- ence.

101
OPERATIVE EOUCATION I
igned for the associate degree or certificate student wishing to par- ate in a related educetional work experience as an elective. The stu- will be pleced with an epproved employer in a job related to the skills knowledge offered in his or her program. Variable 1-6 Cr.

102
OPERATIVE EDUCATION II
igned for the associate degree or certificate student who has suc- fully completed CED 101 and wishes to participate in a second pro- n of related educational work experience with the same or a new loyer. Veriable 1-6 Cr.

103
OPERATIVE EDUCATION III
course is designed to essist the cooperative education student ugh the transition from college to the "world of work". A series of inars emphasizes acquiring job application skills, adjusting to the k environment, and developing sound interpersonal relationships. A tion of the course will be devoted to methods of reporting the day- to- and total experiences gained while on the job. CED 103 may be re- ed for co-op students prior to the initial job placement. No credit.

DAIRY HERD MANAGEMENT (DHM)

M 711
ILS AND SOIL FERTILITY
dents will study the different soil types found in Pennsylvania and te soil types to fertility, plant growth and tillage. Will include the study ertilizers, soil test reports, chemical applications related to texture and nomically maximizing production. Lab sessions will include soil ting, lime and fertilizer selection and application and conservation. 3 (2-3).

M 712
RAGE PRODUCTION
e course emphasizes the forage program as a vital part of the dairy eration. Includes forage production and handling and the economic im- tance of forage to the feeding program. Crops covered include corn — silage and grain — alfalfa, haylage and dry hay, small grains and sses. Students will participate in field crop planning as well as equip- nt operation and maintenance and weed control. 3 Cr. (1-6).

M 713
IRY FEEDING AND MANAGEMENT
oics include feeding dairy animals for growth, reproduction and pro- ction. Analysis of forage, nutrient content of feeds and nutrient re- rements of all dairy animals will be covered. Students will develop and ance rations and apply their knowledge in developing different feeding tems. 3 Cr. (1-6).

DHM 714
DAIRY HERD HEALTH
Stresses sanitation and hygiene in promoting animal health. Causes, symptoms and methods of prevention and control of common diseases will be covered. During lab practice students will perform less complicated veterinary practices. Students will practice day-to-day herd management skills needed for herd health. 3 Cr. (2-3).

DHM 721
FINANCING DAIRY ENTERPRISES
The course covers financial aspects of dairy farming — including capital requirements, appraisal, sources of financing and credit applications. Major farm lending institutions will be emphasized. Financing as a management tool for the dairy operation will be covered. 3 Cr. (3-0).

DHM 722
MILKING MANAGEMENT
Udder anatomy, milk secretion, milking machine function and use, sanitation, mastitis control and prevention. Management systems related to different facilities and equipment options will be discussed. Includes costs of operation and maintenance. 3 Cr. (1-6).

DHM 723
FARM RECORDS, ANALYSIS AND COMPUTERS
The course stresses management principles based on sound, properly recorded farm business transactions. Exercises concentrate on development of accurate records related to dairy farm operations. Records are then analyzed for taxation, depreciation, net worth and loans. Strengths and weaknesses will be identified. Computers will be used during various portions of the course. 3 Cr. (3-0).

DHM 724
ANIMAL BREEDING AND REPRODUCTION
Emphasizes reading the genetic qualities of sires and determining herd deficiencies through judging and classifying cows. Includes animal genetics, breeding systems and reproductive organs. Covers breeding records, heat detection and artificial insemination procedures. 3 Cr. (1-6).

DHM 725
REPLACEMENT STOCK MANAGEMENT
Course stresses the economic importance of raising quality herd replacements. Management of young stock will include animals from calves to heifers ready to enter the milking herd. A wide range of practices will be discussed — including housing, health, identification and feeding. 3 Cr. (2-3).

DENTAL HYGIENE (DHG)

DHG 100
INTRODUCTION TO DENTAL HYGIENE
An introduction to fundamental concepts and techniques of primary preventive measures. Includes use and care of dental equipment.
4 Cr. (2-6).

DHG 115
ORAL ANATOMY AND HISTOLOGY
The development and structure of the oral and facial regions with the emphasis on dental anatomy. 3 Cr. (3-0).

DHG 121
DENTAL MATERIALS
Principles and manipulation of the physical, mechanical and chemical properties of dental materials. 2 Cr. (1-3). *Prerequisites: DHG 100, DHG 115, CHM 107.*

DHG 123
PERIODONTICS I
A self-paced programmed course. Subject matter is presented through tapes, slides and manuals. Covers normal and healthy periodontium. The biological and clinical basis for the future understanding of periodontal disease. The pathology of the periodontium, including types, causes and prevention. 1 Cr. (0-3). *Prerequisite: DHG 100, DHG 115.*

DHG 124
CLINICAL DENTAL HYGIENE I
Lectures are combined with practical experience in the clinic. Students begin to provide preventive oral health services. 4 Cr. (1-9). *Prerequisites: DHG 100, DHG 115.*

DHG 126
DENTAL RADIOLOGY
The physics of radiation and radiation biology are related to the principles, techniques and interpretation of intra and extraoral radiographs. Quality in exposing and processing x-rays (with respect to the safety of the patient and operator) is stressed. 3 Cr. (2-3). *Prerequisites: DHG 100, DHG 115.*

DHG 230
CLINICAL DENTAL HYGIENE II
Additional experience in the techniques of performing complete patient services. Emphasizes advanced procedures. Special topics — including root planing and curettage, oral photography, pulp testing, ultrasonic scalers, etc. — are introduced and combined with clinical experience. 5 Cr. (1-12). *Prerequisites: DHG 121, DHG 123, DHG 124, DHG 126.*

DHG 236
PERIODONTICS II
A study of clinical diagnosis and treatment of periodontal disease. Stresses the importance of periodontal therapy and the role of the dental hygienist. 1 Cr. (1-0). *Prerequisites: DHG 121, DHG 123, DHG 124, DHG 126.*

DHG 239
GENERAL AND ORAL PATHOLOGY
General and oral disease. Emphasizes diseases and anomalies related to the oral cavity. 2 Cr. (2-0). *Prerequisites: DHG 121, DHG 123, DHG 124, DHG 126, BIO 125, BIO 201.*

DHG 241
COMMUNITY DENTAL HEALTH
Philosophy of community dental health. Techniques of teaching preventive dental health to groups. Fluoridation, special dental health programs, use of statistical materials. Rotating assignments give students opportunities to participate and observe in a variety of dental settings. 2 Cr. (2-0). *Prerequisites: DHG 230, DHG 236, DHG 239, DHG 243, DHG 245.*

DHG 242
CLINICAL DENTAL HYGIENE III
Additional experience in dental hygiene techniques. 4 Cr. (0-12). *Prerequisites: DHG 230, DHG 236, DHG 239, DHG 243, DHG 245.*

DHG 243
DENTAL SPECIALTIES
Discussion of pedodontics, endodontics, oral surgery, operative dentistry, combined with practice in expanded functions. 3 Cr. (2-3). *Prerequisites: DHG 121, DHG 123, DHG 124, DHG 126.*

DHG 244
DENTAL PRACTICE ORIENTATION
Ethics and jurisprudence, office procedures and management. Review for licensing examinations. 2 Cr. (2-0). *Prerequisites: DHG 230, DHG 236, DHG 239, DHG 243, DHG 245.*

DHG 245
PHARMACOLOGY
The study of drugs to familiarize the students with their properties, preparation, effects upon the body, the modes of administration. Special consideration is given to those drugs which are of dental value including antibiotics, pain relieving drugs, antiseptics and anesthetics. Emphasis is placed on first aid and emergency treatment. 2 Cr. (2-0). *Prerequisites: CHM 107, DHG 121, DHG 123, DHG 124, DHG 126.*

DEVELOPMENTAL STUDIES (CHD, ENL, MTH, RDG)

The College awards institutional credit for courses numbered 001-099. This credit will appear on the student's transcript and be included in calculating the cumulative grade point average. However, credits earned in courses numbered 001-099 may not replace any course or be used as electives required in a given program.

CHD 100
VALUE CLARIFICATION AND DECISION MAKING (8 weeks)
This course is designed to improve the student's self understanding as well as to provide a "skills" orientation toward coping with life problems. The course is based on the concept that many of the skills, techniques, and strategies that individuals use in various life situations can be adapted and are almost universally applied in other kinds of life difficulties. The course attempts to show students that a "life plan" is complete only when one considers all aspects of the human condition as important. 1 Elective Cr. (1.5-1.5).

CHD 101
CAREER EXPLORATION (8 weeks)
Specific steps in the career decision making process are taught. Students explore the world of work as it relates to their values, interests and abilities. The course offers students a step by step process for use in making career decisions. 1 Elective Cr. (1.5-1.5).

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0). This course may not replace any English requirement or elective in a program.

MTH 001
ARITHMETIC
Presents the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post-tests are used to insure mastery of units covered. 3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented based on the student's aptitudes and needs. Pre and post-tests are used to insure mastery of units covered. More than one semester may be required for mastery of the objectives. 3 Institutional Cr. (3-0).

RDG 010
READING IMPROVEMENT
Basic reading improvement for students with limited success in previous reading performance. Differences in ability and background will determine areas each student will pursue. Emphasis on comprehension, vocabulary, speed, spelling. Students learn to take notes on textbook assignments. Audio tapes, reading machines, individualized materials and handout sheets are available to encourage individual learning. 3 Institutional Cr. (3-0).

G 099
DEPENDENT STUDY
course of study designed to meet the needs of students who need in-idualized help with reading skills or study skills. No credit. (1-3).

G 101
OLLEGE READING AND STUDY SKILLS
udents ecquire or review basic reading and study skills needed for suc-ss in college courses. Reading skills include comprehension, cabulary, end speed. Effective study habits and skills include outlining, mmarizing, underlining, notetaking, and test-taking techniques. 2 Elec-e Cr. (2-0).

G 102
OLLEGE STUDY SKILLS (5 weeks)
udents develop effective study habits end skills. Emphasizes outlining, mmarizing, underlining, notetaking and test-taking techniques. 1 Elec-e Cr. (2-2).

G 103
BRARY SKILLS (5 weeks)
udents become familiar with and learn to locate and use materials in the llege's library. Emphasizes the preparation of the working outline of a search paper. 1 Elective Cr. (2-2).

DIESEL MECHANICS (DMC)

MC 513
TRODUCTION TO DIESEL MECHANICS (8 weeks)
ecision mechanical measurement. Basic fastening devices. Gasoline sel engine operation and service. 7 Cr. (9-15).

MC 514
TERNAL COMBUSTION ENGINES (8 weeks)
troduction to diesel engines. Electrical systems, emphasizing cranking, hting, ignition, charging circuits, hand tools, power tools, and bench rk. 7 Cr. (9-15).

MC 523
OUR-CYCLE DIESEL ENGINES (8 weeks)
ur-cycle diesel engine repair and overhaul. Emphasizes diesel truck gines. 7 Cr. (9-15). *Prerequisites: DMC 513, DMC 514.*

MC 524
WO-CYCLE DIESEL ENGINES (8 weeks)
wo-cycle diesel engine repair and overhaul. Diesel power applications, cluding trucks. Air induction system overhaul and troubleshooting. asic air-conditioning/refrigeration principles. 7 Cr. (9-15). *Prerequisites: MC 513, DMC 514, DMC 523.*

MC 533
UEL INJECTION SYSTEMS I (8 weeks)
troduction to diesel fuel injection systems. Principles of governing and echanical governing. Principles of jerk type fuel systems. 7 Cr. (9-15). *erequisites: DMC 513, DMC 514, DMC 524, or SOE 725 or AMT 511.*

MC 534
UEL INJECTION SYSTEMS II (8 weeks)
ydraulic governors. Principles of distributor type fuel systems. 7 Cr. -15). *Prerequisites: DMC 513, DMC 514, DMC 523, DMC 524, DMC 533.*

MC 543
RUCK TRACTOR POWER TRAIN (8 weeks)
uck power train. Clutch, transmission, driveline, and differential. 7 Cr. -15). *Prerequisites: DMC 513, DMC 514, DMC 523, DMC 524.*

DMC 544
TRUCK TRACTOR CHASSIS (8 weeks)
Truck chassis, brakes, and suspension. State inspection procedures. 7 Cr. (9-15). *Prerequisites: DMC 513, DMC 514, DMC 523, DMC 524, DMC 543.*

DRAFTING—ENGINEERING (EDT)

EDT 101
MECHANICAL DRAWING
Offered to students enrolled in non-drafting programs. Use of drawing instruments, lettering, geometric construction, orthographic projection, isometric and oblique, dimensioning, sections, auxiliary views, threads and fasteners, working drawings. 2 Cr. (1-3).

EDT 102
ENGINEERING DRAFTING
Practical applications of drafting in electrical construction for both domestic and commercial use. House diagrams with circuit schematics, wiring diagrams and developing bills of materials. Layout diagrams for public facilities — for example, the lighting system for a small community. 2 Cr. (1-3).

EDT 103
GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr. (1-3).

EDT 104
AIRCRAFT DRAWINGS
Aircraft blueprint reading for aviation maintenance technicians. Emphasizes reading and interpreting multiview drawings. Includes installation diagrams, schematics, the use of charts and graphs. Making three dimensional sketches for repair and alterations to aircraft. 2 Cr. (1-3).

EDT 107
BLUEPRINT READING
Blueprint reading for welders. Emphasizes the reading, drawing and interpretation of multiview drawings involving dimensions, notes, specifications and welding symbols. 2 Cr. (1-3).

EDT 108
MANUFACTURING PROCESSES
Covers the theory, demonstration, and hands-on applications of drilling, reaming, counterboring, countersinking, tapping, turning, milling, and grinding. Theory and demonstrations of numerical control equipment. 3 Cr. (2-3).

EDT 111
BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

EDT 112
BASIC DRAFTING II (8 weeks)
Screwthreads and fastening devices, axonometric projection; isometric drawings. Sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: EDT 111.*

EDT 121
POWER TRANSMISSION (8 weeks)
Power and motion transfer through the use of gears and cams and other devices. 4 Cr. (4-12). *Prerequisite: EDT 112.*

EDT 122
MECHANISMS (8 weeks)
Power and motion transfer through the use of various linkages and mechanisms. 4 Cr. (4-12). *Prerequisite: EDT 121.*

EDT 201
DESCRIPTIVE GEOMETRY
Principles of orthographic projection. Fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes; graphic computations for bearings and slopes of lines, strike and dip of planes. Solving problems related to the intersection of planes and solids. 3 Cr. (1-6). *Prerequisite: High school background in drafting.*

EDT 231
DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate working drawings, sub-assemblies and assemblies. Drawing details from sketches and other engineering specifications; applied strength of materials; bearings; lubrications; elementary design and simplified drafting. 4 Cr. (4-12). *Prerequisite: EDT 112.*

EDT 232
APPLIED DRAFTING TECHNIQUES (8 weeks)
Making complex detail drawings based on industrial castings. Comprehensive study of close tolerance dimensioning. Introduction to fluid mechanics; metric conversion. 4 Cr. (4-12). *Prerequisite: EDT 231.*

EDT 241
ADVANCED DETAIL I (8 weeks)
Redesign of industrial castings into weldments. Making detail drawings from engineering layouts. Comprehensive study of welding, piping and layouts. Material strength in relation to weldments and piping design. 4 Cr. (4-12). *Prerequisite: EDT 232.*

EDT 242
ADVANCED DETAIL II (8 weeks)
Advanced study in and applications of drafting. The use of industrial layouts to make detail, assembly and sub-assembly drawings. Includes geometric tolerancing, true position dimensioning and surface specifications which conform to industrial standards; structural drafting and reprodrafting. 4 Cr. (4-12). *Prerequisite: EDT 232.*

ECONOMICS (ECO)

ECO 201
PRINCIPLES OF ECONOMICS
Introduces basic economic terms and concepts. Analyzes United States economic system and compares it to those of other countries. Students apply theory in developing basic economic computations and graphs. Macroeconomics is emphasized; some microeconomic concepts (consumer demand, utility, elasticity of supply/demand) are studied. 3 Cr. (3-0).

ECO 202
ECONOMIC ANALYSIS
A study of the theory of the firm. Analysis of economic problems involved in public policy decisions. Recommended for students intending to major in economics. 3 Cr (3-0). *Prerequisite: ECO 201.*

ECO 290
SPECIAL STUDIES IN ECONOMICS
A flexible course designed to meet special needs of economics students. 1-3 Cr. (1 to 3-0). *Prerequisite: Permission of the instructor.*

EDUCATION (EDU)

EDU 111
INTRODUCTION TO EDUCATION
Study of the foundations of education — historical, economic, philosophical, and social — and their implications for education today. Cr. (3-0).

EDU 121
CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adult literature. Basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area of a library. 3 Cr. (3-0).

ELECTRIC (ELC, ELT)

ELC 711
DIRECT CURRENT FUNDAMENTALS
Basic electrical laws, electrical terms, batteries, electrostatics, electric meters and instruments, direct current machinery. 6 Cr. (4-6). *Corequisite: MTH 710.*

ELC 712
BASIC WIRING LAB
Laboratory course in the tools and materials of the trade. Use and care of hand tools; instruction in wiring basic circuits; residential lighting and receptacle circuits, low voltage switching and control circuits; use of electrical underwriters rules in color coding. 3 Cr. (1-5).

ELC 715
MOTOR MAINTENANCE AND REPAIR
Electrical and mechanical features of various single phase motors; lab work; development of knowledge and skills in rewinding and repairing single phase motors. 3 Cr. (1-5).

ELC 721
BASIC MOTOR CONTROL
Theory and lab assignments in wiring starting and control equipment for DC and AC motors. Includes circuitry for start-stop stations, forward-reverse and jogging push button stations. Includes some speed control. 3 Cr. (3-3).

ELC 722
ALTERNATING CURRENT FUNDAMENTALS
Alternating current electricity as it relates to residential, commercial and industrial power use. Laws and formulas used to solve problems in the use of AC power; AC machinery; lab work in applying AC electrical principles. Practical experiences in hooking up equipment and instruments. 3 Cr. (4-6). *Prerequisite: ELC 711. Corequisite: MTH 500.*

ELC 726
RESIDENTIAL BLUEPRINTS
Electrical plans and specifications for a single family dwelling. Installation procedures for all types of circuits used in residential wiring. Includes switches, receptacles, special purpose outlets, heating systems, phone, television, and service entrance calculations. 3 Cr. (3-0).

ELC 832
ADVANCED MOTOR CONTROL
Theory and laboratory assignments further develop skills acquired in ELC 721. The study end use of speed controls, plugging equipment for braking and dynamic braking, timing relays involving pneumatic and dash pot types. 3 Cr. (1-5). *Prerequisite: ELC 721.*

ELC 833
BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical materials. House wiring circuits, wiring boxes of many kinds, armored cable, Wiremold and Romex, fluorescent and incandescent light switches and receptacle circuits 3 Cr. (1-6). *Prerequisite: ELC 712.*

ELC 834
BASIC ELECTRONICS FOR INDUSTRY
Basic electronic concepts used in industrial control. Study of vacuum tubes, electronic circuits, solid state devices, symbols, and motor circuits. Laboratory practice in using these devices demonstrates their use in industry. 6 Cr. (4-6). *Prerequisite: ELC 722.*

ELC 835
COMMERCIAL, INDUSTRIAL BLUEPRINTS & EQUIPMENT
The installation of commercial and industrial systems and equipment using blueprints. Students learn to read and interpret these blueprints and become familiar with the equipment. 2 Cr. (2-0).

ELC 845
ADVANCED ELECTRICAL CONSTRUCTION
Practice in the installation of rigid conduit and other electrical wireways. Pulling in and wiring motor controllers and other electrical equipment. Study of blueprints for large electrical construction jobs. 3 Cr. (0-9). *Prerequisite: ELC 833.*

ELC 847
PROGRAMMABLE CONTROL
A practical and theoretical approach to the installation, programming, and maintenance of programmable control (P.C.) equipment. The application of P.C. in manufacturing processes. Theory covers the proper installation of P.C. equipment, especially the correct grounding applications of processor units and the development of P.C. ladder diagrams. The practical work includes programming and changing operational programs to prepare the student to work as a "line mechanic" on production lines using programmable controls. 4 Cr. (3-3). *Prerequisites: ELC 721, ELC 832 or related industrial experience.*

ELC 848
ELECTRICAL MACHINERY ANALYSIS
Theory and laboratory instruction in complex metering methods for industrial equipment, static and logic circuitry, equipment troubleshooting and repair using schematic diagrams, power transmission and distribution. 4 Cr. (2-6). *Prerequisite: ELC 722.*

ELC 849
INDUSTRIAL CONTROL
Industrial control devices and control circuits and their applications in practical systems. Emphasizes solid state technology; laboratory experience in constructing and troubleshooting the solid state control circuits used in industry. 4 Cr. (3-3). *Prerequisites: ELC 832 and ELC 834.*

ELT 110
ELECTRICITY FOR THE TRADES
Theory and laboratory assignments in electrical design. Symbols used on building construction blueprints. Explanation of electrical diagrams. The use of the National Electrical Code as a governing agent which establishes wiring requirements. Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory. 3 Cr. (2-3).

ELT 111
DIRECT CURRENT FUNDAMENTALS
Basic principles of electricity and the laws and formulas which are used to solve electrical problems. Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery. Laboratory work trains students to hook up equipment and instruments. 5 Cr. (4-3). *Corequisite: MTH 103.*

ELT 112
BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacle circuits. Low voltage switching and control circuits. Electrical underwriters rules. Proper use and care of hand tools. 3 Cr. (1-6).

ELT 113
ACCIDENT PREVENTION
Principles of accident prevention in industry. Electrical safety procedures in all human activities; lifesaving techniques. 2 Cr. (2-0).

ELT 122
ALTERNATING CURRENT FUNDAMENTALS
The fundamental principles of the behavior and flow of alternating current electricity. Includes problem solving, current, voltage, impedance, reactance and power factor in series and parallel circuits. Operating principles of AC motors, generators and control equipment. 5 Cr. (4-3). *Prerequisite: ELT 111. Corequisite: MTH 104.*

ELT 124
ELECTRICAL BLUEPRINT READING AND NATIONAL ELECTRIC CODE
The study of electric blueprints and specifications used for residential, commercial, and industrial systems in buildings. Calculating the load requirements established by Codes — the number of circuits and size of feeders. Designing and drawing layout diagrams, schematic diagrams, control diagrams. The study and design of remote control systems. Minimum standards set by the National Electrical Code. 4 Cr. (4-0).

ELT 125
BASIC ELECTRICAL CONSTRUCTION
Additional study in the use of electrical equipment and materials. Includes all types of wiring devices and wiring systems. Planning and installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems. 3 Cr. (2-3). *Prerequisite: ELT 112 or ELC 712.*

ELT 233
BASIC ELECTRONICS
Fundamentals of electronics. Basic symbols, circuit configurations, electron tubes, solid state devices; rectifier, amplifier, and oscillator circuits used in industrial work. Laboratory practice in industrial electronics includes the layout and assembly of various circuits and solid state devices. 6 Cr. (4-6). *Prerequisite: ELT 122.*

ELT 234
ELECTRICAL MOTOR CONTROL
Motor control systems in industry — both simple and complex. Tracing circuits and troubleshooting a system from a schematic drawing. The principles of rotating and magnetic amplifiers, and static switching. 4 Cr. (3-3).

ELT 241
ELECTRICAL SYSTEMS ANALYSIS
The use of electrical equipment and electrical testing apparatus to aid in locating and repairing malfunctions in equipment. Preventive maintenance and maintenance records. Use of voltmeters, ammeters, wattmeters, ohmmeters, megohmmeters, wheatstone bridge, tachometer, and all hand tools used in the electrical trade. 2 Cr. (1-3). *Prerequisite: ELT 122.*

ELT 244
ADVANCED ELECTRICAL THEORY
Solution of network problems. Problems involving the charge and discharge of capacitors and rotating vectors. Problems in alternating electricity. 3 Cr. (3-0). *Prerequisite: ELT 122.*

ELT 245
INTRODUCTION TO PROGRAMMABLE LOGIC CONTROL
A theoretical and practical approach to the application of Programmable Logic Control (PLC) in manufacturing processes. Theory covers the development of PLC ladder diagrams as applied in control systems. Practical laboratory work with "industry standard" control equipment prepares students for technician level positions involving a wide range of production control work. 4 Cr. (3-3). *Prerequisite: ELT 234.*

ELT 531
AIR CONDITIONING/REFRIGERATION ELECTRICITY
Basic AC and DC circuitry, laws of electricity, uses of meters, and safety procedures in air conditioning and refrigeration. Practical techniques in wiring and sections of the National Electrical Code. 6 Cr. (4-6).

ELT 541
ELECTRIC MOTORS AND REFRIGERATION CONTROLS
Theory of operation, applications, installation, and troubleshooting of the electrical control circuits and control devices used in air conditioning and refrigeration. The operation and application of basic types of motors used in the industry. 5 Cr. (3-6).

ELECTRONICS (ENT)

ENT 111
DC - AC THEORY
Introduction to electrical and electronics theory. Includes basic atomic theory, Ohm's Law, Kirchoff's Law with formulas and calculations for network analysis; AC waveforms; capacitance and inductance, resonance; vector analysis, complex AC numbers, including the "j" operator. 5 Cr. (5-0). *Corequisite: MTH 103.*

ENT 115
ELECTRONICS LABORATORY I
Application of basic AC-DC theory concepts. Wiring and soldering techniques and circuit construction practices for electronic circuits. Introduction to the use of test equipment and measuring techniques. Safety practices for electronics. 3 Cr. (0-9). *Prerequisites or Corequisites: ENT 111, ENT 116.*

ENT 116
INTRODUCTION TO SOLID STATE DEVICES
Physics of solid state devices. Their essential characteristics, symbols and quiescent operating modes. Introduction to basic circuits. 3 Cr. (3-0).

ENT 125
INTERMEDIATE SOLID STATE DEVICES AND CIRCUITS
Continuation of ENT 116. AC equivalent circuits, design analysis; op-amps; integrated circuits; multi-stage design; feedback analysis. 5 Cr. (5-0). *Prerequisite: ENT 116. Corequisite: MTH 104.*

ENT 126
ELECTRONICS LABORATORY II
Construction and measurement of a variety of solid state devices and circuits. Measurement techniques are used to collect data. Emphasizes the presentation of collected data in technical report form using narrative and graphic techniques. 3 Cr. (0-9). *Prerequisites or Corequisites: ENT 115, ENT 125.*

ENT 127
INTRODUCTION TO DIGITAL ELECTRONICS
Digital number systems and codes. Introduction to basic gates and associated circuits; digital analysis by timing diagrams. 3 Cr. (3-0).

ENT 233
COMMUNICATION CIRCUITS AND SYSTEMS
Modulation systems for transmission and reception; wave propagation transmission lines and antennas; digital communication techniques; hig power vacuum tube circuits. 5 Cr. (5-0). *Prerequisite: ENT 125.*

ENT 237
ELECTRONICS LABORATORY III
Advanced prototyping techniques. Communication circuit alignment an measurement with specialized test equipment. Digital circuit implementation with a variety of logic families. Advanced technical report writing. 2 Cr. (0-9). *Prerequisites or Corequisites: ENT 233, ENT 238.*

ENT 238
INTERMEDIATE DIGITAL ELECTRONICS
Continuation of ENT 127. Analysis of state of the art digital circuits. Em phasizes digital measuring equipment and techniques. 3 Cr. (3-0). *Prere quisite: ENT 127.*

ENT 241
CALIBRATION AND STANDARDIZATION
Principles of electronic instrument calibration and standardizing techniques. Instruments used in laboratory are calibrated according to the National Bureau of Standards. 3 Cr. (2-3).

ENT 246
INTRODUCTION TO MICROPROCESSORS
Basic microprocessor architecture; microcomputer programming techni ques and software aids. Methods of interfacing microcomputers an digital systems. 5 Cr. (5-0). *Prerequisites: ENT 127, ENT 238. Corequisite: ENT 247.*

ENT 247
ELECTRONICS LABORATORY IV
Lab experiments will complement ENT 246. Each student will use a microprocessor trainer to learn programming and interfacing techniques Use of specialized digital measuring instrumentation, including comple logic analyzers and storage oscilloscopes. 3 Cr. (0-9). *Corequisite: ENT 246.*

ENT 248
ADVANCED CIRCUIT ANALYSIS
State of the art devices and circuits, both analog and digital, are analyzed in detail to train students in advanced troubleshooting techniques. 3 Cr (3-0).

ENGINEER IN TRAINING (EIT)

EIT 201
STATICS
The basic principles of statics: various force systems, static equilibrium of the force systems, friction and miscellaneous static related problems. The practical applications of these principles – analysis of roof and bridg trusses, beam under various loading conditions; belt friction and rollin resistance, flexible cables, etc. 3 Cr. (3-0).

EIT 202
STRENGTH OF MATERIALS I
Outlines properties of engineering materials, behavior of materials under loads, stress and deformations, riveted and welded joints, torsion, centroids, moment of inertia, areas of shear and moments in beams, stresse in beams and design of beams. Students learn to analyze and design sim ple beams, riveted and welded connections, shafts subjected to torsion, etc. 3 Cr. (3-0).

T 203
YNAMICS
asic principles of dynamics, i.e., kinematics of rectilinear motion, cur-linear motion, kinetics of motion, plane motion, and their effects on oving or static bodies. The application of these principles – the use of ork, energy, power and impulse, momentum and impact concepts to olve various motion problems. 3 Cr. (3-0).

T 204
LUID MECHANICS
asic principles of fluid mechanics and their applications in practical fluid echanics problems. Properties of fluids, fluid pressure at rest, buoyancy ffect, steady flow of liquids in closed conduits, as well as in open chan-els, losses in both cases, flow measuring devices, variable flow, forces roduced by fluids in motion and dimensional analysis and similitudes. All quations of the fluid flow are derived from the basic Bernoulli equation. Cr. (3-0).

IT 205
TRENGTH OF MATERIALS II
ontinuation of Strength of Materials I. Covers complex problems such s deflection of beams by moment-area method, analysis of statically in-eterminate beams by three moment equation and moment distribution ethods, combined bending and axial stresses, analysis and design of mber, steel and aluminum columns and special topics of strain energy nd impact loadings. 3 Cr. (3-0).

IT 206
NGINEERING ECONOMICS
tudy of economics in relation to engineering. 3 Cr. (3-0).

IT 207
NGINEERING CHEMISTRY
n intensive course of chemical calculations based on chemical reactions nd physical properties of substances. Includes theoretical topics needed or calculations. 3 Cr. (3-0).

IT 208
HERMODYNAMICS
nergy transfer in relation to changes in physical properties of ubstances. 3 Cr. (3-0).

IT 209
NGINEERING PHYSICS
A study of physics as it relates to engineering. 3 Cr. (3-0).

IT 210
NGINEERING ELECTRONICS
undamental principles of electrical circuit analysis are applied to EIT pro-lems. Includes Ohm's law, series circuits, parallel circuits, series-parallel ircuits, network theorems, magnetism, electro-magnetic induction, lternating current and voltage inductance, inductive reactance, apacitance, capacitive reactance, capacitive circuits, alternating current ircuits, complex numbers and resonance. 3 Cr. (3-0). *Prerequisites: lgebra, trigonometry and basic calculus.*

ENGLISH (ENL)

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0). This course may not replace any English requirement or elective in a program.

ENL 111
ENGLISH COMPOSITION I
Basic composition – language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. Offers the student a variety of methods for use in developing his/her own written expression. Analysis, discussion, and practice of such methods as description, definition, narration, comparison, classification and argumentation. The student uses writing to explain and explore, gaining experience in essential writing and research skills. 3 Cr. (3-0).

ENL 121
ENGLISH COMPOSITION II
Continues the writing principles developed in ENL 111. Includes the study of poetry, prose and drama. Emphasizes critical analysis and interpretation of literature through discussion and written assignments. Through writing about literature and its themes, students examine the purpose, argument and style of literary writing. Students explore the importance of literature to society; study the impact of language upon the reader and apply the skills learned in ENL 111. 3 Cr. (3-0). *Prerequisite: ENL 111.*

ENL 201
TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports, instructions, memos and other communication for business and industry. Students develop skills in analyzing audiences and writing for readers both with and without technical expertise. 3 Cr. (3-0). *Prerequisite: ENL 111 or permission of instructor.*

ENL 202
FUNDAMENTALS OF SPEECH
Includes public speaking, its methods and evaluation, and the development of persuasive speech. The study of modern rhetorical theory in interpersonal and group dynamics; mass persuasion and non-verbal behavior. The student will participate as speaker in a variety of situations and roles, including conflict, mediation, support, and common ground. 3 Cr. (3-0).

ENL 231
WORLD LITERATURE
Students read literature which expresses the western belief in the paramount importance of the individual. Surveys representative works of continental Europe from classical Greek/Roman periods to the present. 3 Cr. (3-0). *Prerequisite: ENL 121 or permission of instructor.*

ENL 235
CREATIVE WRITING
Development of skills in writing imaginative prose. Students present short stories for class criticism and review. 3 Cr. (3-0). *Prerequisite: ENL 111.*

ENL 250
LITERATURE OF THE AMERICAN INDIAN
A reading of the oral and written literature of Native Americans, with emphasis on literature produced in North America. The works will be approached through literary criticism, philosophy, religion, psychology, history, and social criticism. 3 Cr. (3-0).

ENL 251
MASTERS OF HORROR: HORROR IN LITERATURE AND THE MASS MEDIA
A humanities elective exploring the serious treatment of "horror" by authors from the 17th century to modern times, including Shakespeare, Shelley, Poe, Lovecraft and Bradbury. Also examines the evolution of the pulps, the horror comic, the horror radio series and the horror film as forces that shape and mirror the mainstream of American social thought. 3 Cr. (3-0).

ENL 290
SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

ENL 711
COMMUNICATIONS
Skills and competencies in basic technical writing and oral communication to meet the needs of the applied arts certificate student. 3 Cr. (3-0). (With permission of instructor and upon demonstration of the appropriate writing skills, ENL 201 may be substituted for ENL 711. Course substitution form must be filed if ENL 711 is required in the student's curriculum. See Integrated Studies Division Director.)

ENVIRONMENTAL SCIENCE (ESC)

ESC 100
ENVIRONMENTAL SCIENCE
Designed especially for the non-science student who wants to understand environmental systems and problems from a scientific viewpoint. Covers many aspects of energy, land, water, and air pollution and their effect on living organisms, especially people. 3 Cr. (3-0).

FLORICULTURE (FLR, OHT)

FLR 121
GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production. Emphasizes environmental control, plant culture, facilities, and equipment. Includes demonstration of techniques. 3 Cr. (2-3).

FLR 122
FLORAL DESIGN I
Instruction in and application of principles in the art of floral design. Includes form, styles and composition. Covers designing floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages. 3 Cr. (1-6).

FLR 232
GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants. Emphasizes techniques used for important commercial crops. Students will grow crops in the College's greenhouses. 3 Cr. (2-3).

FLR 233
FLORAL DESIGN II
A continuation of FLR 122. Covers designing dried and silk arrangements. Stresses shop layout and routine procedures in the operation of a flower shop. 3 Cr. (2-3). *Prerequisite: FLR 122.*

FLR 243
GREENHOUSE CROP PRODUCTION III
Production of potted plants, bedding plants, and other crops using commercial techniques. Includes production, planning, crop rotation, and the role of management. 3 Cr. (2-3).

FLR 244
FLOWER SHOP OPERATION
Emphasizes buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop. Lab practice in perfecting design techniques and developing originality— emphasizes wedding designs. 3 Cr. (2-3).

FLR 245
HOUSE AND CONSERVATORY PLANTS
Identification, culture, propagation and use of house and conservatory foliage plants. Course includes artificial lighting, indoor landscaping for homes, malls and business, soils and fertilizers for commercial growing, insects, diseases, and cultivation problems associated with foliage plants. 3 Cr. (2-3).

OHT 114
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as related to the use of lime and fertilizers. Includes synthetic soils and moisture-air relationships. 3 Cr. (2-3).

OHT 115
WOODY PLANTS I
An introduction to the study of trees, shrubs and vines grown in nurseries for landscape purposes. The course stresses the identification and uses of woody plants. 2 Cr. (1-3).

OHT 116
HERBACEOUS PLANTS
The classification, identification, and general culture of perennials, bulbs and roses. Practice in landscape use and design of flower borders. 3 Cr. (2-3).

OHT 234
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means — applications in floriculture production, nursery production, and forestry. 3 Cr. (2-3).

OHT 239
PLANT INSECTS & DISEASES
The insects and diseases of horticulture crops. The nature, structure, growth habits, harmful effects, and control of insects and related forms. The most common and harmful plant diseases are studied for identification and control. 3 Cr. (2-3). *Prerequisite: BIO 111.*

OHT 246
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment. Includes small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

FOOD AND HOSPITALITY (FHD)

FHD 111
INTRODUCTORY FOODS
Study and application of the basic scientific concepts related to food preparation. Emphasizes knowledge of basic ingredients and the production and evaluation of quality food products. Includes orientation to the food service industry, study of advances in food technology and practice in using the grill, fryer and microwave. 3 Cr. (2-3).

FHD 112
NUTRITION
Sources and functions of nutrients and how they relate to body functions. Essentials of an optimum diet. Includes nutritive requirements for each stage of the life cycle. 3 Cr. (3-0).

FHD 113
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS I (8 weeks)
Introductory hospital and dietary experience. Includes orientation to a hospital and work experience in dietary office practice, food preparation, beltline service, and patient visitations. 1 Cr. (0-6). 132 Clinical Hours).

FHD 114
INTRODUCTION TO FOOD SERVICE ADMINISTRATION AND MEDICAL CARE ORGANIZATIONS
Organization and management of a dietary unit. The role of the technician and working relationships with other health care professionals. Federal, state and local food handling regulations. Examination of total health care systems, organizational structure, medical records, laws, and ethics. 2 Cr. (2-0).

FHD 115
PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing. Correct procedures for food storage and sanitation. Training staff in correct procedures to assure production of safe food. 3 Cr. (3-0).

FHD 121
QUANTITY FOOD PREPARATION
Menu planning, purchasing, preparation, and service of food in quantity. Emphasizes safe and efficient use of quantity food preparation equipment, cooking with steam and deep fat, meats, and production management. 3 Cr. (2-3). *Prerequisites: FHD 111 or permission of instructor.*

FHD 122
DIET THERAPY WITH DIETETIC SEMINAR
In-depth study of principles of therapeutic diets. Includes medical terminology, tours of community health services, and familiarity with diet manuals. Students learn interviewing, counseling techniques and sources for professional updating. Seminar includes study of specific therapeutic cases. 3 Cr. (3-0). *Prerequisite: FHD 112.*

FHD 123
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS II
Students work in the dietary department in areas related to the subjects they are studying. Six hour lab periods rotate between quantity food production, menu and cost control, and diet therapy. Students meet with the dietitian supervisor one hour a week to discuss unanswered questions and learning experiences. 3 Cr. (1-6). *Prerequisite: FHD 113.*

FHD 125
MENU PLANNING AND COST CONTROL
Techniques of planning nutritious meals for commercial establishments and institutions; the printed menu; controlling costs through good menu planning and other techniques. 3 Cr. (3-0).

FHD 126
FRONT OFFICE MANAGEMENT AND HOUSEKEEPING
Introduction to hotel and motel management. Managing a front office — includes promotion, guest registration, and cost control; management of the housekeeping department. Includes supervised work experience at area hotels and motels. 3 Cr. (2-3). Offered every other year in the spring term.

FHD 201
ADVANCED QUANTITY FOODS
Cooking foods in quantity. Emphasizes advanced skills of food preparation, ordering and receiving, individual learning objectives. Will strengthen areas in which student needs help. 2 Cr. (0-6). *Prerequisite: FHD 121.*

FHD 231
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS IV
Students train in kitchen and geriatric therapeutics in a nursing home. Emphasizes personnel management, hiring, training, and record keeping. 3 Cr. (1-6). *Prerequisite: FHD 250.*

FHD 234
HEALTH CARE DELIVERY SYSTEMS
In-depth study of the health care programs available to the public. Present problems and future directions of health care institutions and the medical profession. Includes factors that consumers of health care services should know about in order to avoid fads and quacks. 3 Cr. (3-0).

FHD 235
PERSONNEL MANAGEMENT, WORK SIMPLIFICATION
Management techniques, interpersonal relationships, motivations, manual motions, work place layout, production job analysis and evaluation. Establishing work loads. 3 Cr. (3-0).

FHD 236
HOSPITALITY MANAGEMENT AND THEORY
Supervised practical experience in various areas of food and hospitality management and production. Lecture and discussion cover work schedules, employer-employee relations, food purchasing and preparation, personnel supervision and training, menu planning and other subjects related to the student's choice of practicum. 2 Cr. (1-5).

FHD 241
BEVERAGE MANAGEMENT AND CATERING
Techniques of restaurant management. Includes all types of beverages and bar management. Management of the catered meal. Preparation and presentation of classic and international cuisines. 3 Cr. (2-3). *Prerequisite: FHD 121 or work experience in food preparation for a varied menu.*

FHD 242
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS V
Management in various nutrition programs. Students work in a school, with feeding groups of the aged, and in a five-meal-a-day hospital program which emphasizes renal and cancer patients. 3 Cr. (1-6). *Prerequisite: FHD 231.*

FHD 245
EQUIPMENT AND LAYOUTS
Familiarizes students with current types of equipment and ways to lay out facilities for best production, service, safety, and sanitation. 3 Cr. (3-0). *Prerequisite: FHD 121, or commercial or institutional work experience.*

FHD 246
HOSPITALITY MERCHANDISING
Sales, merchandising and promotion techniques are applied to food and lodging establishments. Each student does an in-depth feasibility study on a possible investment — includes financing and merchandising. 3 Cr. (3-0).

FHD 250
HOSPITALITY, DIETETIC WORK EXPERIENCE (MANAGEMENT SYSTEMS III)
Prior to the beginning of the fourth semester a work experience of 120 hours is required. Dietetic Technician students work in an institutional dietary department under a registered dietitian. Food and Hospitality students work in the food and hospitality industry. Students are evaluated by employer/supervisor, submit a written report, and discuss their experience with the instructor. 1 Cr. (120 Clinical Hours). *Prerequisite for Dietetic Technician Program: FHD 123.*

FOREST TECHNOLOGY (FOR)

FOR 111
DENDROLOGY
Classification, identification, and distribution of woody plants in the United States. Emphasizes species of local commercial importance. 3 Cr. (2-3).

FOR 113
FOREST MENSURATION
Measurement of standing trees, of logs and other cut wood products. Calculating the contents of these products in terms of board feet, cubic feet, cords, and pounds. Measuring growth in trees and forests. 3 Cr. (2-3).

FOR 115
FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees. The stem structure of trees and the identification of commercial tree species based on microscopic characteristics of wood. 3 Cr. (2-3).

FOR 121
PHOTOGRAMMETRY AND FOREST SURVEYING I
The basic techniques of photogrammetry (the use of photographs in surveying and forest measurement), photo interpretation; introduction to surveying, including the fundamentals of plane surveying and the use and care of equipment. 3 Cr. (1-6).

FOR 124
ADVANCED FOREST MENSURATION
Determining the quality of logs and trees. Estimating volumes of large timber areas by different sampling techniques. The use and interpretation of aerial photos in forest surveys. 3 Cr. (2-3).

FOR 126
FOREST ECOLOGY AND WILDLIFE MANAGEMENT
Introduction to ecology, upon which the management of forest and wildlife resources may be based. Improves the student's understanding of the ecological relationship of forest and wildlife communities. 3 Cr. (2-3).

FOR 232
FOREST SURVEYING II
Theory and practice of plane surveying techniques used in property and boundary surveys, map making, construction surveys, and computations. Emphasizes the use of these techniques in forestry. 3 Cr. (2-3). *Prerequisite: FOR 121.*

FOR 233
EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices commonly used in forest operations. 3 Cr. (2-3).

FOR 234
TIMBER HARVESTING
Cutting trees. Skidding and moving timber from the woods to the point of manufacture. Modern logging methods and techniques. Includes cutting tree stems into lengths and units of highest economic value. 3 Cr. (2-3).

FOR 236
SILVICULTURE
Forestry practices and systems used to grow and manage trees and forests for the sustained production of timber products. 3 Cr. (2-3).

FOR 242
FOREST PRODUCTS
Converting round timber products into a semi-finished state. The manufacturing process of changing these raw materials into finished consumer products. Includes seasoning lumber and preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FOR 247
FOREST LAND MANAGEMENT AND RECREATION
Basic concepts of managing publicly and privately owned forest lands used for more than one purpose (for example, recreation and logging). Shows the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

FOR 248
FOREST PROTECTION
The causes and effects of forest fires. Methods used to control forest fires. The identification, effects and control of other harmful agents, principally insects and diseases. 3 Cr. (3-0).

GEOGRAPHY (GEO)

GEO 101
PHYSICAL GEOGRAPHY
Introduction to the fundamentals of geography — maps, mapping, land, water, soil, vegetation, atmosphere, climate. Covers the relationship between physical and human environment. 3 Cr. (3-0).

GEOLOGY (GEL)

GEL 105
PHYSICAL GEOLOGY
Basic concepts in the study of the Earth. Relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents, and the ocean basins. 4 Cr. (3-3).

GEL 106
HISTORICAL GEOLOGY
Origin of the Earth, evolution of its crust, and the development and evolution of life. Relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment; relative and absolute age dating of the Earth. 4 Cr. (3-3).

GEL 290
SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

GERMAN (GER)

GER 111
BEGINNING GERMAN I
Basic grammar and language structure. Comprehension, speaking and reading, with the emphasis on pronunciation and accent. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

GER 121
BEGINNING GERMAN II
Continuation of GER 111. 3 Cr. (3-0). *Prerequisite: GER 111*

GOVERNMENT (GOV)

GOV 231
AMERICAN GOVERNMENT – NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Students examine the historical development of our federal system and analyze the relationships between social forces, government and political action. 3 Cr. (3-0).

GOV 241
STATE AND LOCAL GOVERNMENT
State and local government institutions, their functions and responsibilities; intergovernmental relations. 3 Cr. (3-0).

GOV 290
SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

GRAPHIC ARTS (GCO)

GCO 511
LAYOUT AND DESIGN
Materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 4 Cr. (2-6).

GCO 512
TYPOGRAPHIC COMPOSITION
Fundamentals of typesetting. Theory and practice in the care and use of composing (typesetting) machines, both hot and cold (mechanical) and cold (photo). 4 Cr. (2-6).

GCO 515
LAYOUT AND DESIGN
For students enrolled in programs other than Graphic Arts. Materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 3 Cr. (2-3).

GCO 516
TYPOGRAPHIC COMPOSITION
For students enrolled in programs other than Graphic Arts. Fundamentals of typesetting. Theory and practice in the care and use of composing (typesetting) machines, both hot and cold (mechanical) and cold (photo). 3 Cr. (2-3).

GCO 521
PROCESS CAMERA
Darkroom procedures for reproducing line and halftone copy using process cameras. 4 Cr. (2-6).

GCO 522
FILM ASSEMBLY AND IMPOSITION
Study and application of various methods for assembling negatives and positives to create flats (preparation for making offset plates). 4 Cr. (2-6).

GCO 525
PROCESS CAMERA
For students in programs other than Graphic Arts. Darkroom procedures for reproducing line and halftone copy using process cameras. 3 Cr. (2-3).

GCO 526
FILM ASSEMBLY AND IMPOSITION
For students in programs other than Graphic Arts. Study and application of various methods for assembling negatives and positives to create flats (preparation for making offset plates). 3 Cr. (2-3).

GCO 631
PLATEMAKING, SUBSTRATES AND FINISHING
Identification, selection, and relationship of paper and board stocks. Non printing conversions for the printing, publishing, and allied industries. Theory and applications related to the various types of offset plates and processing procedures. 4 Cr. (2-6).

GCO 632
PRESS OPERATIONS
Printing press operation. Ink mixing and matching, registration; preventive maintenance for quality analysis. 4 Cr. (2-6).

GCO 635
PRINTING ESTIMATING PRACTICES
Theory and practice in estimating job costs, writing specifications and planning jobs for production. 3 Cr. (3-0).

GCO 641
ADVANCED TYPOGRAPHIC COMPOSITION
Continuation of GCO 511 and GCO 512. Emphasizes photo composition as it relates to the composition industry. Students will do individual projects and/or live work. 3 Cr. (1-6). *Prerequisites: GCO 511, GCO 512.*

GCO 642
ADVANCED PROCESS CAMERA AND STRIPPING
Advanced study in black and white tone reproduction, special effects and basic color procedures. Advanced work in color stripping and photo-art techniques. 3 Cr. (1-6). *Prerequisites: GCO 521, GCO 522.*

GCO 645
PRINTING PROCESSES
Theory and application of the four major printing processes: letterpress, lithography, gravure, and silk screen. 3 Cr. (1-6).

HISTORY (HIS)

HIS 111
WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization — from ancient times until the eighteenth century. 3 Cr. (3-0).

HIS 121
WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization — from the eighteenth century until the present. 3 Cr. (3-0).

HIS 231
UNITED STATES – SURVEY I
Political, economic, and social development of the United States from colonial times through the Civil War and Reconstruction Period. 3 Cr (3-0).

HIS 241
UNITED STATES – SURVEY II
Political, economic, and social development of the United States from 1877 up to and including the Civil Rights Movement. 3 Cr. (3-0).

HIS 290
SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

HUMAN SERVICE (HSR)

HSR 111
INTRODUCTION TO HUMAN SERVICE
Examines the range of human problems and the programs and systems designed to help individuals address problems. Students explore the roles they might assume as human service workers. 3 Cr. (3-0).

HSR 121
HELPING PROCESS AND CRISIS INTERVENTION
Designed to familiarize students with the fundamental techniques involved in interviewing and crisis intervening in human service practice. 3 Cr. (3-0). *Prerequisite: HSR 111 or PSY 111.*

HSR 125
FUNDAMENTALS OF COUNSELING
Refines students' interviewing skills and develops skills in group work, behavior modification, decision making, relaxation therapy, assertiveness training and other counseling techniques. 3 Cr. (3-0). *Prerequisite: HSR 111 or PSY 111.*

HSR 240
MANAGEMENT AND ADMINISTRATION IN HUMAN SERVICES
Develops students' understanding of planning, evaluation, management, community relations and other activities which affect the operation of a human service agency. Focuses on the special needs, such as fund raising, of non-profit agencies. 3 Cr. (3-0). *Prerequisite: HSR 111 or work experience in the human service field.*

HSR 251
HUMAN SERVICE PRACTICUM I
Practicum courses are field work experiences held under Cooperative Education guidelines. These internship experiences allow students to learn through actual work in a human service agency. Students will work alongside professionals, study the agency in which they work, and relate theory to actual practice. 3 Cr.

HSR 252
HUMAN SERVICE PRACTICUM II
Field work experiences held under Cooperative Education guidelines. See HSR 251 for additional information. 3 Cr.

HSR 260
HUMAN SERVICE SEMINAR
By studying a particular problem or population, students learn how theory and skill are applied in a specific setting. Seminar courses are planned for such areas as gerontology, drug and alcohol counseling, child care and child development, mental health/mental retardation and other similar areas. Professionals from the field and visitations will, in many cases, supplement classroom learning. 3 Cr. (3-0).

HSR 261 through HSR 279 will focus on specific seminar topics. Each seminar will be 3 Cr. (3-0).

INDUSTRIAL DRAFTING (IND)

IND 714
BASIC DRAFTING (8 weeks)
Introduction to industrial drawing; lettering; geometric drawing; orthographic projections; pictorial projections; sectioning; dimensioning; auxiliary views; revolutions; sketching; reproduction processes; threads and fasteners. 5 Cr. (3-21).

IND 715
MACHINE DRAFTING (8 weeks)
Making accurate detail drawings based on complex industrial machine parts. Assembly and sub-assembly drawing based on industrial layouts. Applying close tolerance dimensioning; geometric tolerancing; true position dimensioning. Surface finish specifications which conform to industrial and military standards. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 724
GEARS, CAMS, AND MECHANISMS (8 weeks)
Study of power transmission, pulleys, gears, sprockets, applied with mechanisms used to create motion in machines through linkage. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 725
SHEET METAL AND PIPING (8 weeks)
A study of sheet metal intersections and developments; cones; transition pieces. Connection of skewed position openings with irregular shaped duct. A comprehensive study of piping systems, piping layout drawings, and basic hydraulics. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 834
CIVIL DRAFTING (8 weeks)
Students make and use maps. Plotting traverses from field notes; gathering surveying information; drawing contour maps. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 835
STRUCTURAL DRAFTING (8 weeks)
Students make shop drawings based on the original concept of a structure as conceived by the architect or engineer. Includes detailed instructions for punching, assembling, bolting, riveting, and welding. Basic types of loads and stresses are emphasized. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 844
ARCHITECTURAL DRAFTING (8 weeks)
Residential housing — dining rooms, bedrooms, living rooms, baths, kitchens. Identifying the components of house construction; stair layouts; doors; windows; fireplaces; structural members and loading; working drawings. 5 Cr. (3-21). *Prerequisite: IND 714*

IND 845
ELECTRICAL AND ELECTRONIC DRAFTING (8 weeks)
Practical applications of drafting in the field of electrical construction — both domestic and commercial uses. House diagrams with circuit schematics, wiring diagrams and developing bills of materials. Types of electronic diagrams, symbols, reference designations and identification of essential parts. National Electric Code will be explored and applied. 5 Cr. (3-21). *Prerequisite: IND 714.*

JOURNALISM (JOU)

JOU 111
NEWS WRITING
Techniques of basic news writing for print media and covering a community or in-house news beat. Emphasis on organizing information and rewriting to develop skills. Detailed critiques and class discussion of student writing. Introduction to the video system of writing. 3 Cr. (3-0).

JOU 114
MASS MEDIA PHOTOGRAPHY
Introduction to photography with an adjustable camera and auxiliary equipment. Emphasizes techniques for producing black and white photos for news and related mass media. Students develop skills related to lighting, imaginative posing, action, and in-camera cropping. Course assumes no previous experience. Students must furnish camera. 3 Cr. (3-0).

JOU 121
REPORTING PUBLIC AFFAIRS
Development of news writing skills through class assignments and news beat coverage. Emphasis on deadlines and tight thorough writing. Focus on public events reporting in practicum and in the field. 3 Cr. (3-0). *Prerequisite: JOU 111.*

JOU 122
INTRODUCTORY NEWSPAPER PRODUCTION
Beat reporting and writing for student publications and/or the College's information services under deadline pressure. Introduction to organizational responsibilities and management through reportorial team assignments or committee assignments. Includes basics of mechanical production and publication planning. Continued use of video writing. 2 Cr. (0-6). *Prerequisite: JOU 111.*

JOU 231
FEATURE WRITING
Survey of news features including brites, color stories, sidebars, and personality sketches. Introduction to related writing for pamphlets, brochures, in-depth reports and magazine fillers. Techniques of interviewing and research. Writing with goal of publication for pay. 3 Cr. (3-0).

JOU 232
COPYREADING AND EDITING
Preparing material for publication with consideration for legal and ethical standards. Judicious editing of both traditional and video copy, copyreading, headline writing, picture editing, typography, layout and planning relative to print media production. 3 Cr. (3-0). *Prerequisites: JOU 111 and JOU 121, or GCO 515, or GCO 511, or permission of the instructor.*

JOU 233
NEWSPAPER MANAGEMENT AND PRODUCTION
Experience in a responsible, managerial position with student publications or in College information services. Focus on development of skill in news judgment, planning, and production. Students must have demonstrated ability to complete assignments with minimal supervision. Students must coordinate individualized instructional consultations. 2 Cr. (0-6). *Prerequisite: JOU 122.*

JOU 244
PUBLICATION MANAGEMENT
Strengthens skills developed in Newspaper Management and Production. In addition to on-going use of skills, the course requires planning, staffing and production of cost-conscious medium for a pre-designated audience. 2 Cr. (0-6). *Prerequisites: JOU 232, JOU 233.*

MACHINE TOOL TECHNOLOGY AND MACHINIST GENERAL (MTT)

MTT 511
MACHINING I (8 weeks)
Use of hand tools to produce layouts and objects by hand. Simple filing, sawing, and assembly techniques. Use of drill presses, drill sharpening; drilling to a layout, drill jigs. Producing parallel and square surfaces, shaping rectangular objects. 5 Cr. (5-15).

MTT 512
MACHINING II (8 weeks)
The theory of grinding tool bits: turning, facing, tape and turning, boring and thread cutting on the lathe. Practice in end milling, slab and plain milling. 5 Cr. (5-15).

MTT 521
AUTOMATIC MACHINES (8 weeks)
Fundamental concepts of metal removal using multi-tooling machining processes. Use and care of carbide tooling to obtain maximum effort. Emphasizes turret lathes, automatic screw machines, automatic power tapping machines. 5 Cr. (5-15).

MTT 522
INDUSTRIAL METROLOGY (8 weeks)
The use of precision instruments such as verniers, various types of comparators, Rockwell hardness testing, toolmakers scope. Testing for flatness of surface, surface plate work — includes the use of the sine bar, advanced blueprint reading, introduction to metric measurements, and quality control using the sampling method. 5 Cr. (5-15).

MTT 631
TOOLING TECHNOLOGY I (8 weeks)
Theory and practice in machining. Cutting and assembling precision die parts, layout and boring to close tolerance in jigs and fixtures. Background theory and practice in machining different types of threads; application of threads. 5 Cr. (5-15).

MTT 632
TOOLING TECHNOLOGY II (8 weeks)
Background theory and practice in operating numerically controlled machining center types of machines. Includes coding methods, machining of gears, terminology of gears, power transmission and indexing methods, simple, differential and helical milling. 5 Cr. (5-15).

MTT 641
ABRASIVE MACHINING (8 weeks)
Theory and practice in surface, cylindrical, internal, and jig grinding. Grinding threads, taps, electrical chemical grinding, and electrical discharge machining are included. 5 Cr. (5-15).

MTT 642
HEAT TREATMENT AND CUTTER GRINDING (8 weeks)
Theory and practice in hardening and tempering various kinds of metal. Carburizing, case hardening, annealing, normalizing, and forging of steel. Includes grinding of all types of tools and cutters. 5 Cr. (5-15).

MASS COMMUNICATIONS (MCM)

MCM 111
INTRODUCTION TO MASS COMMUNICATION
A basic survey course which examines the many different mass media, including newspapers, magazines, radio, television, motion pictures, book publishing, and the recording industry. Examines such areas as advertising in commercial media, photography and photojournalism, mass media news, networks, syndicates, cable, satellite communications, legal issues in the working press, regulatory control of the mass media, the audience and the effects of mass communication. Includes a glossary of media terms. 3 Cr. (3-0).

MCM 122
MEDIA AND LAW
Concentrated survey of mass media and its relationship to the law. Includes intense examination of libel, slander, right to privacy, privilege, provisions of the First Amendment, etc. Considers precedent-setting court rulings and ongoing case histories. 3 Cr. (3-0).

MCM 242
MEDIA MANAGEMENT AND COMMUNITY RESPONSIBILITY
This advanced course studies the commercial media in the U.S. as an individual business serving a specific community or market. Includes the function of the media plant as a competitive, small or medium-sized business in the marketplace. Covers ethical considerations inherent in the communication business. Topics are discussed and evaluated in class and applied through case studies. Students apply skills through designing a small-market media plant. 3 Cr. (3-0).

MCM 243
PUBLIC RELATIONS
A basic course which surveys specialized writing and techniques and the use of a range of media (print, electronic) for disseminating information to particular audiences, including in-house groups. Includes practical study of news releases, house organs and other public relations vehicles. Students apply principles and techniques in simulated or actual projects. 3 Cr. (3-0).

MATHEMATICAL COMPUTER SCIENCE (MCS)

MCS 111
THEORY OF PROGRAMMING I
Introduction to programming. Topics include computer configuration, operating systems, algorithm design and development, loop structure, decision making, data types, subprograms, global and local variables, memory allocation, arrays. A higher level language (such as Pascal, FORTRAN, BASIC, etc.) will be used. Applications will be studied through laboratory experience on microcomputers. 4 Cr. (3-3). *Corequisite: MTH 238.*

MCS 121
THEORY OF PROGRAMMING II
Advanced programming techniques. Topics include structured programming, stepwise refinement, style, debugging, control structures, file structures, searching, sorting and merging. A second higher level language will be introduced. 4 Cr. (3-3). *Prerequisite: MCS 111.*

MCS 201
DATA STRUCTURES
Representation of data and algorithms associated with data structures. Topics include representation of arrays, strings, dense lists, linked lists, multi-linked lists, queues, stacks, deques, trees, graphs and files and the operations of sorting, searching, insertion, deletion and hashing 4 Cr. (3-3). *Prerequisite: MCS 121.*

MCS 202
MACHINE LANGUAGE PROGRAMMING
Principles of machine language programming. Topics include computer organization, representation of numbers, strings, arrays and list structures at the machine level, interrupt programming, linking loaders, and operating system interfaces. 4 Cr. (3-3). *Prerequisite: MCS 121.*

MATHEMATICS (MTH)

MTH 001
ARITHMETIC
Presents the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Post-tests are used to insure mastery of units covered. 3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented based on the students' aptitudes and needs. Post-tests are used to insure mastery of units covered. More than one semester may be required for mastery of the objectives. 3 Institutional Cr. (3-0).

MTH 101
INTRODUCTION TO MATHEMATICS I
Exploration of number and geometric patterns. Problem solving, mathematical recreations, flow charts, sets, logic, systems of numeration. Introduction to algebra and other selected topics. A general education course for non-mathematics and non-science majors. 3 Cr. (3-0). *Prerequisite: One year of high school mathematics.*

MTH 102
INTRODUCTION TO MATHEMATICS II
Probability, statistics, selected topics from geometry, number systems, and other selected topics. A general education course for non-mathematics and non-science majors. 3 Cr. (3-0). *Prerequisite: MTH 101.*

MTH 103
COLLEGE ALGEBRA & TRIGONOMETRY I
Properties of real numbers, basic algebraic operations, relations and functions, equations and inequalities, basic right triangle trigonometry, sine and cosine laws. Designed for general studies and technology students who need a thorough precalculus algebra background. 3 Cr. (3-0). *Prerequisite: Two years of high school algebra, and MTH 002 or MTH 105, or placement by examination.*

MTH 104
COLLEGE ALGEBRA & TRIGONOMETRY II
Continuation of MTH 103. Circular, trigonometric, inverse, exponential, and logarithmic functions, complex numbers, polar coordinates, determinants, systems of equations, linear inequalities and other selected topics. 3 Cr. (3-0). *Prerequisite: MTH 103 or placement by examination.*

MTH 105
INTERMEDIATE ALGEBRA
Skills and concepts of polynomials, equations and formulas, ratio and proportion, variation, systems of linear equations, factoring, quadratic equations, trigonometry and other selected topics. For associate degree automotive students. 3 Cr. (3-0). Cannot be used to satisfy General Studies requirements. Cannot be used as an elective credit in programs requiring MTH 103. *Prerequisite: One year of high school algebra or placement by mathematics exam.*

MTH 107
APPLIED CALCULUS
Relations and functions, conics, limits, derivetives and integration of algebraic functions. Trigonometric functions and transcendental functions, methods of integration and applied problem solving. Excellent preparation for students who intend to sit for the Engineer in Training Examination. 3 Cr. (3-0). *Prerequisite: College algebra and trigonometry or permission of instructor.*

MTH 201
ELEMENTARY STATISTICS I
Introduction to frequently applied statistical methods descriptive statistics, frequency distributions, elementary probability, binomial, normal and t-distributions, Central Limit Theorem, tests of hypotheses, confidence intervals, regression and correlation, and other topics as time permits. For general studies and technology students who need a basic working knowledge of statistics. 3 Cr. (3-0) *Prerequisite: One year of high school algebra.*

MTH 202
ELEMENTARY STATISTICS II
Continuation of MTH 201. Emphasizes applied statistical techniques and design of experiment; Student T, Chi-square, F-tests, linear regression, correlation, and models; analysis on enumerative data; analysis of variance; non-parametric statistics. Offered regularly in the spring terms of even numbered years. 3 Cr. (3-0). *Prerequisite: MTH 201 or permission of instructor.*

MTH 203
STATISTICS WITH COMPUTER METHODS
Introduction to frequently applied statistical methods with emphasis on computer models and solutions. Topics include statistical models, statistical inference, distributions, probability and random variables. 3 Cr. (3-0). *Prerequisite: MCS 111.*

MTH 204
MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence, vector spaces, linear transformations, characteristic equations of a matrix, bilinear, quadratic, and Hermintian forms. Recommended for computer science, science, and technology students. May be used as a core requirement or general elective for general studies students. Offered regularly in the spring terms of odd numbered years. 3 Cr. (3-0). *Prerequisite: Two years of high school algebra, MTH 103, or permission of instructor.*

MTH 237
DISCRETE MATHEMATICS
Introduction to discrete structures. Topics include logic and proof, sets, combinatorics, graphs, modeling, homomorphisms, boolean algebra, logic networks, coding theory, finite state machines and computability, formal languages and general algebraic structures emphasizing semigroups, monoids and groups. 3 Cr. (3-0). *Prerequisite: MTH 238.*

MTH 238
CALCULUS I
Algebra review. Functions, limits, continuity, derivatives, velocity, rates of change, chain rule, curve sketching, related rates, maximum-minimum theorems, differentials, applications, antiderivatives. 4 Cr. (4-0). *Prerequisite: MTH 103 and MTH 104, or placement by math exam, or permission of instructor.*

MTH 248
CALCULUS II
Continuation of MTH 238. Emphasizes the definite integral, applications of integration, transcendental functions, techniques of integration, and other selected topics. 4 Cr. (4-0). *Prerequisite: MTH 238.*

MTH 249
LINEAR ALGEBRA
The study of vector spaces. Topics include linear independence, bases and dimension, linear transformation matrices, and systems of linear equations. 3 Cr. (3-0). *Prerequisite: MTH 238.*

MTH 290
SPECIAL TOPICS IN MATHEMATICS
By special arrangement for individuals or groups. Study of special topics, i.e., Differential Calculus, Modern Algebra, Modern Geometry. Arrangement to be made through instructor and Division Director. 1-4 Cr.

MTH 500
TECHNICAL MATHEMATICS II
Topics from algebra, geometry, right triangle trigonometry, and other areas. Emphasizes practical problems in the student's area of concentration. 3 Cr. (3-0). Cannot be used to satisfy math requirements for students in the General Studies Associate Degree program. *Prerequisite: MTH 710 or equivalent or permission of instructor.*

MTH 515
GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics. For aviation students. 3 Cr. (3-0).

MTH 710
TECHNICAL MATHEMATICS I
Arithmetic operations with whole numbers, common and decimal fractions, percent, basic principles of measurement, fundamentals of the metric system, ratio and proportion, and practical geometry. Other selected topics in technical-vocational mathematics include graphs and consumer mathematics or basic algebra and basic trigonometry, depending on a student's curriculum. For students in certificate programs. 3 Cr (3-0). Placement by mathematics examination.

MEDICAL TERMINOLOGY (MTR)

MTR 101
MEDICAL TERMINOLOGY I
Introduction to medical terminology. Emphasizes etiology, symptomatology, pathology, and diagnostic procedures. 3 Cr. (3-0).

MTR 102
MEDICAL TERMINOLOGY II
Continuation of MTR 101. Students learn to read and understand the language of medicine. Emphasizes the meanings of root words and their combining forms. 3 Cr. (3-0). *Prerequisite: MTR 101.*

NURSERY MANAGEMENT (NMG, OHT)

NMG 121
NURSERY PRODUCTION I
Nurseries and careers. Covers aspects of garden center location, layout and design and merchandising techniques. Includes nursery structures and facilities, nursery equipment, plant growth, growth habits and pruning. Nursery practices: ball and burlapping and transplanting. 3 Cr. (2-3).

NMG 126
WOODY PLANTS II
Continuation of OHT 115. Covers additional plants – emphasizes deciduous trees, shrubs, vines, ground covers, and their varieties and cultivars (varieties grown under cultivation). 3 Cr. (2-3). *Prerequisite: OHT 115.*

NMG 232
NURSERY PRODUCTION II
Nursery aspects of plant propagation. Emphasizes field and container production techniques, production schedules, nursery soil management, weed control, and cost analysis. 3 Cr. (2-3). *Prerequisite: NMG 121.*

NMG 237
WOODY PLANTS III
Advanced study of plant identification. Emphasizes broad leaved and narrow leaved evergreens - their varieties and cultivars. 3 Cr. (2-3). *Prerequisites: NMG 126, OHT 115.*

NMG 245
LANDSCAPE CONSTRUCTION
Techniques used to build landscape features. Includes the construction of patios, walks, retaining walls, fences, fountains, waterfalls, pools and steps using various materials. Establishing and maintaining lawns and plantings. Specifications, bidding and pricing of landscape jobs are also covered. 3 Cr. (1-6).

NMG 248
LANDSCAPE MAINTENANCE
Covers aspects of turf management and tree care (arboriculture). Establishment and maintenance of different types of turf areas. Emphasizes golf course, institutional, park, and home turf areas. Planting, climbing, guying, pruning, fertilizing, cabling, and bracing of shade trees. Stresses evaluation and care of ornamental trees. 3 Cr. (2-3).
Prerequisites: OHT 115, OHT 239.

NMG 249
LANDSCAPE DESIGN
Covers the principles and problems of landscape design. Emphasizes the effective use of plant materials in developing landscaped areas — for homes and public areas — to make them as attractive and useful as possible. Includes basic drawing and drafting principles. 3 Cr. (1-6).
Prerequisites: NMG 126, OHT 115.

OHT 114
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as related to the use of lime and fertilizers. Synthetic soils and moisture-air relationships included. 3 Cr. (2-3).

OHT 115
WOODY PLANTS I
An introduction to the study of trees, shrubs, and vines grown in nurseries for landscape purposes. The course stresses the identification and uses of woody plants. 2 Cr. (1-3).

OHT 116
HERBACEOUS PLANTS
The classification, identification and general culture of perennials, bulbs, and roses. Practice in landscape use and design of flower borders. 3 Cr. (2-3).

OHT 234
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means — applications in floriculture production, nursery production, and forestry. 3 Cr. (2-3).

OHT 239
PLANT INSECTS & DISEASES
The insects and diseases of horticulture crops. The nature, structure, growth habits, harmful effects, and control of insects and related forms. The most common and harmful plant diseases are studied for identification and control. 3 Cr. (2-3). *Prerequisite: BIO 111.*

OHT 246
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment. Includes small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

ORNAMENTAL HORTICULTURE (FLR, NMG, OHT)

See FLORICULTURE and NURSERY MANAGEMENT

OUTDOOR POWER EQUIPMENT (OPE)

OPE 710
SMALL ENGINE FUNDAMENTALS (8 weeks)
Introduction to basic tools and special tools of the trade. Covers engine identification, operation of two and four-cycle engines and the use of parts and service manuals. 5 Cr. (5-15).

OPE 711
DRIVE UNITS AND SYSTEMS (8 weeks)
Emphasizes lawn mowers, riding mowers and garden tractors. Covers general operation and maintenance procedures and drive systems, manual transmissions, hydrostatic units, differentials, angle drive units and hydraulic systems. 5 Cr. (5-15).

OPE 721
OPERATION, REPAIR AND MAINTENANCE (8 weeks)
Correct operation, maintenance and repair of chainsaws, snowmobiles, motorcycles and outboard engines. 5 Cr. (5-15).

OPE 722
SHOP OPERATION AND CUSTOMER RELATIONS (8 weeks)
Emphasizes personal appearance, conduct, attitude and employee-employer relations. Includes general shop operation, bookkeeping, inventory control, writing shop repair orders, warranty procedures and customer relations. 5 Cr. (5-15).

PHILOSOPHY (PHL)

PHL 111
INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major concerns of philosophy: Meaning and Truth, Perception and External World; God, Mind and Body. 3 Cr. (3-0).

PHL 121
ETHICS AND POLITICAL PHILOSOPHY
Students analyze the value systems and political/social theories that shape thought and reality in society. Students examine contemporary ethical problems and the forces which reshape values and political ideas. 3 Cr. (3-0).

PHL 250
PHILOSOPHY, SPORTS, GAMES, PHYSICAL EXERTION
Considerations of the nature of humans and the world through the study of the interplay of mind and matter in sports, games, and physical exertion. Special emphasis on stress in physical exertion and its effects on consciousness. Applications to morality, psychology, religion, social organization. Latitude given to the pursuit of individual and group interests. Involvement by those able in physically exerting activity, such as running, swimming, cross-country skiing, weight-lifting, etc. 3 Cr. (3-0).

PHYSICAL EDUCATION (PED)

The Physical Education requirements may be waived with permission of the Dean and the Director of Health Sciences if the student has been in the Armed Services for at least one year of active duty or if it is determined that he/she should be excused because of age or physical condition.

PED 106
TENNIS/BOWLING
Tennis instruction for beginners and for those who wish to improve their skills in this lifetime sport. Instruction and practice in bowling fundamentals. Includes bowling skills, strategy, scoring and game courtesies. 1 Cr. (0-2).

PED 107
GOLF/BOWLING
Instruction and practice in golf skills to prepare students to play and enjoy a round of golf. Instruction and practice in bowling fundamentals. Includes bowling skills, strategy, scoring and game courtesies. 1 Cr. (0-2).

PED 121
SOCCER/VOLLEYBALL/BASKETBALL
Instruction in soccer and basketball stressing basic skills, strategy, player positioning and game rules. Volleyball (a large muscle activity) instruction for beginners and those who wish to improve their playing skills. 1 Cr. (0-2).

PED 122
SOFTBALL/VOLLEYBALL/BASKETBALL
Instruction and practice in the fundamental skills of softball. Volleyball instruction for beginners and those who wish to improve their playing skills. Instruction in basketball stressing basic skills, strategy, player positioning and game rules. 1 Cr. (0-2).

PED 123
FOOTBALL/VOLLEYBALL/BASKETBALL
Instruction in touch football and volleyball (large muscle activities) for those who wish to learn or improve skills. Instruction in basketball stressing basic skills, strategy, player positioning and game rules. 1 Cr. (0-2).

PED 124
BASKETBALL/VOLLEYBALL
Instruction in basketball stressing basic skills, strategy, player positioning and game rules. Volleyball (a large muscle activity) instruction for beginners and those who wish to improve their playing skills. 1 Cr. (0-2).

PED 125
WEIGHT TRAINING/VOLLEYBALL/SOFTBALL
A progressive developmental program using the Universal Gym in either a 70 percent muscle building category (male) or a 50 percent muscle toning category (female). May include a cardio-vascular efficiency program in jogging, rope jumping or running in place. Volleyball (large muscle activity) instruction for beginners and those who wish to improve their playing skills. Instruction and practice in the fundamental skills of softball. 1 Cr. (0-2).

PED 141
ARCHERY/VOLLEYBALL
Field archery is a fundamental course in target shooting emphasizing accuracy at close ranges. Volleyball (large muscle activity) instruction for beginners and those who wish to improve playing skills. 1 Cr. (0-2).

PED 142
BADMINTON/VOLLEYBALL
Instruction in the fundamental skills of badminton (a lifetime sport). Volleyball (large muscle activity) instruction for beginners and those who wish to improve their playing skills. 1 Cr. (0-2).

PED 143
WEIGHT TRAINING/VOLLEYBALL
A progressive developmental program using the Universal Gym in either a 70 percent muscle building category (male) or a 50 percent muscle toning category (female). May include a cardio-vascular efficiency program in jogging, rope jumping or running in place. Volleyball (large muscle activity) instruction for beginners and those who wish to improve their playing skills. 1 Cr. (0-2).

PED 144
WEIGHT TRAINING/GOLF
A progressive developmental program using the Universal Gym in either a 70 percent muscle building category (male) or a 50 percent muscle toning category (female). May include a cardio-vascular efficiency program in jogging, rope jumping or running in place. Instruction and practice in golf skills to prepare students to play and enjoy a round of golf. 1 Cr. (0-2).

PED 145
ADAPTED P.E./WEIGHT TRAINING
An individualized course designed to meet the specific needs of the student with a physical handicap. Depending upon handicap, program may include a combination of appropriate individual sports and/or a self-development program such as Hatha Yoga or progressive general exercise. Weight training is a progressive developmental program using the Universal Gym in either a 70 percent muscle building category (male) or a 50 percent muscle toning program (female). May include a cardio-vascular efficiency program in jogging, rope jumping or running in place. 1 Cr. (0-2).

PED 146
BOWLING/PHYSICAL FITNESS
Instruction and practice in bowling fundamentals. Includes bowling skills, strategy, scoring and game courtesies. An individualized program to raise the student's level of physical fitness. The program may include exercise, jogging, bicycling, aerobic dance or weight training. 1 Cr. (0-2).

PED 147
JOGGING/PHYSICAL FITNESS
An individualized program of running designed to accommodate each student's needs and goals. An individualized program to raise the student's level of physical fitness. The program may include exercise, jogging, bicycling, aerobic dance or weight training. 1 Cr. (0-2).

PED 162
GOLF
Instruction and practice in golf skills to prepare students to play and enjoy a round of golf. 1 Cr. (0-2).

PED 163
GYMNASTICS
Instruction in movement skills, combinations and sequences in free exercise, tumbling and on gymnastic apparatus. 1 Cr. (0-2).

PED 164
INSTRUCTIONAL SWIMMING
Designed to equip the non-swimmer with the basic water safety skills and knowledge needed for safety when in or near water. 1 Cr. (0-2).

PED 165
LIFESAVING
Covers knowledge and skills needed to meet the requirements for certification in American Red Cross Advanced Lifesaving. 2 Cr. (1-2).

PED 166
RACQUETBALL
Instruction for beginners and for those who wish to improve skills in this lifetime activity. 1 Cr. (0-2).

PED 167
ROLLER SKATING
Instruction and practice in the fundamental skills needed to enjoy this sport. 1 Cr. (0-2).

PED 168
YOGA
Hatha Yoga is a self-discipline designed to increase the efficiency of all body systems. It stresses the reality of self-awareness and introduces relaxation as a way of life. The course stresses the practicing of asanas (postures) and the techniques for complete breathing and total body relaxation. 1 Cr. (0-2).

PED 169
AEROBIC DANCE
A vigorous physical fitness course combining locomotive movements for cardiovascular endurance, exercise for muscle tone and flexibility and basic dance steps for rhythmical development and coordination. The sequences are performed to a variety of musical scores. 1 Cr. (0-2).

PED 170
CANOEING
Canoe safety, equipment, basic paddling techniques, and reading river conditions. 1 Cr. (0-2).

PED 201
PERSONAL AND COMMUNITY HEALTH
Discussions of up-to-date relevant information concerning personal and community health problems of today's college students. 2 Cr. (2-0).

PED 202
RED CROSS STANDARD FIRST AID
This course will cover the material of the "Standard First Aid and Personal Safety Program" and the "Basic Life Support Course in Cardiopulmonary Resuscitation" as set up by the American National Red Cross. It is an intermediate-level first aid course. 2 Cr. (2-0).

PHYSICS (PHS)

PHS 100
PHYSICS – MECHANICS
Lecture, demonstrations. Problem-solving course in elementary mechanics; basic concepts of scientific method; the metric systems; vectors, translatory motion; rotary motion, work, power, energy; physical properties of liquids, solids, gases. Suitable for associate degree students in technology programs. 4 Cr. (3-3). *Prerequisites: MTH 103 or equivalent. MTH 104 background is desirable and we recommend it be taken prior to or concurrent with PHS 100.*

PHS 101
PHYSICS – HEAT AND LIGHT
Basic principles of heat and its measurements: thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat. Light includes refraction, illumination, optics and color. Suitable for associate degree students in technology programs. 4 Cr. (3-3). *Prerequisite: MTH 103 or equivalent. PHS 100 is recommended.*

PHS 102
PHYSICS – ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction. Basic principles of electricity. Suitable for associate degree students in technology programs. 4 Cr. (4-0). *Prerequisite: PHS 100.*

PHS 106
INTRODUCTION TO METALLURGY
Introduction to physical metallurgy; chemical composition, crystallization. Effects of mechanical treatment: drawing, rolling, shaping; thermal or heat treatment. 4 Cr. (4-0). *Prerequisite: None, PHS 100 is recommended.*

PHS 112
INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light. Emphasizes electricity and magnetism. Introductory course for students taking PHS 122 and an appropriate lab science for non-science majors intending to transfer to a four-year institution. 4 Cr. (3-3). *Prerequisite: High school algebra.*

PHS 116
GENERAL PHYSICS I
Principles of mechanics and heat. Calculus is used when it leads to a more direct solution of problems. For science and engineering majors. 4 Cr. (3-3). *Corequisite: MTH 238.*

PHS 122
RADIATION PHYSICS
The fundamentals of electrical and radiation physics and the principles underlying the operation of x-ray equipment and auxiliary devices. 3 Cr. (3-0). *Prerequisite: PHS 112.*

PHS 126
GENERAL PHYSICS II
Continuation of PHS 116. Principles of electricity, magnetism, wave motion, optics and sound. For science and engineering majors. 4 Cr. (3-3). *Prerequisite: PHS 116. Corequisite: MTH 248.*

PHS 202
MECHANICS
Intermediate course in kinematics and dynamics. Differential and integral calculus are used extensively in derivations and problems. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 236
MODERN PHYSICS
Atomic and nuclear physics. Includes structures of atom and nucleus, radioactivity; fission and fusion; relativity; and the periodic table of elements. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 500
PHYSICS SURVEY
Covers most of the following topics – selected to meet the needs of the majority of students in any particular section – matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat; sound; light; optics; magnetism; electricity; atomic phenomena. 3 Cr. (3-0). *Prerequisite: MTH 710 or equivalent.*

PLUMBING AND HEATING (PLH)

PLH 711
BASIC PLUMBING (First 8 weeks)
Correct use of hand and power tools used in the plumbing trade. Methods of joining various types of pipe used in plumbing systems. Provides working knowledge of drain-waste-vent systems recognized by the National Standard Plumbing Code. 6 Cr. (6-18).

PLH 712
ADVANCED PLUMBING SKILLS (Second 8 weeks)
Installation and repair of potable water systems used in residential construction. Identifying components of residential plumbing fixtures. Instruction in the installation and repair of water heaters, kitchen and bathroom fixtures and well pumps. Covers the National Plumbing Code as it relates to residential potable water and drainage systems. 6 Cr. (6-18). *Prerequisite: PLH 711.*

PLH 721
PLUMBING SYSTEMS AND BLUEPRINTS (First 8 weeks)
Introduction to commercial blueprint reading and isometric pipe sketching. Material estimates and ordering. Installation and repair of commercial fixtures; design and construction of cooperative group projects; specialty plumbing includes systems for hospitals and handicapped. 6 Cr. (6-18). *Prerequisite: PLH 712.*

PLH 722
ADVANCED SYSTEM AND CODES (Second 8 weeks)
Introduction to commercial blueprint reading and isometric pipe welding sketching; material estimates and ordering; installation and repair of residential fixtures; design and construction of individual projects. 6 Cr. (6-18). *Prerequisite: PLH 712.*

PLH 832
HOT WATER - HEAT CONSERVATION (Second 8 weeks)
Basic skills needed to lay out, size and install various hydronic hot water systems and hot air for residential and commercial installations. Gas, oil, coal, wood, and combination fuel fired systems. 6 Cr. (6-18). *Prerequisite: PLH 833.*

PLH 833
HEAT LOSS CALCULATIONS - PIPE WELDING (First 8 weeks)
Basic skills required to calculate heat loss for residential and commercial installation; energy conservation. Practice in calculating, designing, and laying out hot water heating systems. Introduction to acetylene welding, cutting and electric arc pipe welding. Short unit on lead repair work. 7 Cr. (8-16). *Prerequisite: PLH 722.*

PLH 841
STEAM HEAT AND PIPEFITTING (First 8 weeks)
Basic skills needed to lay out, size and install residential and commercial steam heat systems, boilers and trim. Emphasizes combustion efficiency testing and oil burner service and repairs. Practical experience stresses advanced piping. 6 Cr. (6-18). *Prerequisites: PLH 832, PLH 833.*

PLH 842
FIELD WORK AND ADVANCED SKILLS (Second 8 weeks)
On-the-job work experience using trade skills acquired in previous courses. Emphasizes layout, roughing-in, and finish operations. Coordination among the trades, cooperation and on-the-job attitudes are stressed. Depending on job commitments, course may include instruction in such related skills as sheet metal, overhead welding and alternate heat sources. This course may be completed on a Cooperative Education basis. 6 Cr. (6-18). *Prerequisites: PLH 711, PLH 712, PLH 721, PLH 722, PLH 832, PLH 833, PLH 841.*

PRACTICAL NURSING (NUR)

NUR 710
FOUNDATIONS OF NURSING
Basic nursing knowledge. Skills common to all areas of nursing practice. Emphasizes the basic needs of patients, using individual patient situations. Includes physical hygiene, comfort, rest, nutrition. The process of developing, implementing, and evaluating nursing care plans is studied and used in patient care. Includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis. 12 Cr. (6-18).

NUR 711
NURSING RELATIONSHIPS
Orientation to the program. The learning process; communication skills; concepts of health; major health problems and agencies; trends in nursing; roles and characteristics of nurses, nursing organizations; legal and religious implications. Range and scope of the nurse's functions; lines of administrative authority. Fundamentals of ethical, psychological, social and human relationships. 3 Cr. (3-0).

NUR 712
SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures. Common pathogens, their characteristics and methods of control; common elements found in the body and their relation to the body in health; the relation of physical properties to the functioning body; the process of metabolism and homeostasis. Psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs — at all ages and under various conditions — the relation of nutrition to health; associated vocabulary. 6 Cr. (6-0).

NUR 723
MEDICAL-SURGICAL NURSING – ELEMENTARY (15 weeks)
Principles of patient care. Includes general medical and surgical conditions. Emphasizes the needs of the adult patient; the causes, treatment, and the prevention of illness; the nursing care involved. The student will be expected to function progressively as a contributing member of the nursing team, and to develop and carry out patient centered care plans geared to patient needs. Students acquire additional skills in nursing procedures. 9 Cr. (6-18). (15 weeks-lecture/7 weeks-lab). *Prerequisite: NUR 710, NUR 711 and NUR 712.*

NUR 724
PARENTAL AND CHILD HEALTH (15 weeks)
Focuses on the concept of the family as a social unit. Helps prepare students for patientside experiences with prenatal, intrapartum and postpartum mothers, and the well and ill child. Includes growth and development, history, current trends, and community agencies in parental and child health. Deviations from normal are considered, but the emphasis is on normal aspects. The student participates in the care of these individuals. 9 Cr. (6-18). (15 weeks-lecture/8 weeks-lab). *Prerequisite: NUR 710, NUR 711 and NUR 712.*

NUR 735
MEDICAL-SURGICAL NURSING – INTERMEDIATE (15 weeks)
Continuation of NUR 723. Develops knowledge and skills to prepare students to provide nursing care which meets the needs of patients of all ages with major health problems. Development of skills in assisting with critically ill, unconscious, moribund and mentally ill patients. 18 Cr. (12-18). *Prerequisites: NUR 723 and NUR 724.*

NUR 736
PRACTICUM
Students are assigned to the cooperating institutions for three weeks to further develop skills in nursing procedures and patient care. 2 Cr. (0-75). *Prerequisite: NUR 735.*

PSYCHOLOGY (PSY)

PSY 111
GENERAL PSYCHOLOGY
Introduction to the science of human behavior and mental processes. Students examine the relation between the nervous system and behavior, learning, perception, language, personality, intelligence and psychopathology. 3 Cr. (3-0).

PSY 201
ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis on their causes, symptoms, and courses of treatment. By examining distorted or exaggerated behavior, students develop a clearer sense of normal behavior. 3 Cr. (3-0). *Prerequisite: PSY 111 or permission of the instructor.*

PSY 203
DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span. Emphasizes principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0). *Prerequisite: PSY 111 or permission of the instructor.*

PSY 231
EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Students explore intelligence and intelligence testing, cognitive development, learning and memory, creativity, language and other relevant topics. These are applied to practical educational problems. 3 Cr. (3-0). *PSY 111 is recommended as a prerequisite.*

PSY 241
SOCIAL PSYCHOLOGY
Interaction of individuals in groups. Harmony and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 290
SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

QUANTITY FOODS (QFP)

QFP 510
INTRODUCTION TO FOOD SERVICE (8 weeks)
Covers essential elements of personal hygiene, sanitation and safety. Includes the use of small equipment and the use and care of commercial food production equipment. 3 Cr. (1-2).

QFP 511
SALADS, SOUPS, AND SANDWICH PREPARATION (8 weeks)
Covers the preparation of beverages, salads, sandwiches, soups and entrees using eggs and cheese. 4 Cr. (1-3).

QFP 520
MANAGEMENT AND PRODUCTION TECHNIQUES (8 weeks)
Provides a comparison of careers in fast food and those in fine dining establishments. Advanced studies in sanitation and safety and the application of nutritional information in food preparation. 3 Cr. (1-2).

QFP 521
DESSERTS, SAUCES AND MEAT PREPARATION (8 weeks)
Covers the preparation of desserts, buffet items and sauces. Includes skills in bake shop and cafeteria operations. 4 Cr. (1-3).

QFP 530
TECHNIQUES OF FOOD PRODUCTION (8 weeks)
An orientation to careers in food service. Students develop competencies in nutrition, table setting and recording tips. 3 Cr. (1-2).

QFP 531
STARCHES AND ENTREE PRODUCTION (8 weeks)
Covers the preparation of vegetables, potatoes, pasta, rice, meats and poultry. 4 Cr. (1-3).

QFP 540
ADVANCED TECHNIQUES OF FOOD PRODUCTION AND SERVICES (8 weeks)
Covers job applications, cost controls, record keeping and procedures for food purchasing and storage. 3 Cr. (1-2).

QFP 541
SHORT ORDER PREPARATION (8 weeks)
Provides competencies in food service management for cooks. 4 Cr. (1-3).

RADIOLOGIC TECHNOLOGY (RAD)

RAD 110
RADIOLOGIC TECHNOLOGY I
Basic concepts of ethical principles and medical structure. Chemical aspects of processing a radiographic film and efficient darkroom (processing) procedures. Theoretical and practical instruction in the radiographic positioning of body structure and organs. Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance, and time. 5 Cr. (3-13).

RAD 120
RADIOLOGIC TECHNOLOGY II
Theory of x-ray technique. Necessity of different radiographic views to avoid superimposition of structure. The involvement of contrast media in relation to reactions, and contraindications to these media. Emphasizes nursing procedures as they relate to radiology. 7 Cr. (4-16). *Prerequisite: RAD 110.*

RAD 200
SUMMER INTERNSHIP
Required internships establish eligibility for registry examination. Internships are arranged with affiliated hospitals. 0 Cr.

RAD 230
RADIOLOGIC TECHNOLOGY III
Students create a working combination -- or establish a new combination -- of exposure factors using x-ray components to produce an interpretive film. Advanced positioning of special radiographic views to demonstrate various anatomical parts. Introduces the operating suite in relation to medical aseptic technique and radiographic procedures. Emphasizes technical special radiographic procedures. 10 Cr. (5-15). *Prerequisite: RAD 120.*

RAD 240
RADIOLOGIC TECHNOLOGY IV
Organization, supervision, law, and finance related to radiology. Emphasizes handling diseased and injured patients. Introduces the role of radiation therapy in treatment of disease, effects on body tissue, and the methods of radiation therapy. Basic concepts of scientific research. 10 Cr. (5-15). *Prerequisite: RAD 230.*

REAL ESTATE (RES)

ES 112
EAL ESTATE FUNDAMENTALS
his course is an introduction to the field of real estate. It emphasizes the gal aspects of real property ownership and lease arrangements and the struments commonly used in property transactions. The functions per·rmed by both the real estate broker and the salesperson and the pro·edures used are included. Real estate law, as it pertains to real estate ansactions and the licensing law, is covered. This course can be applied ward the salesperson's license. 3 Cr. (3-0).

ES 113
EAL ESTATE LAW
his course covers the legal aspects of buying, selling, and holding real state. This course can be used for the salesperson's license. 3 Cr. (3-0). *rerequisite: RES 112 or Division permission.*

ES 114
EAL ESTATE APPRAISAL
ementary principles and practices of appraising residential real estate, ith in-depth study of the three approaches used to arrive at estimated alue. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

ES 115
EAL ESTATE PRACTICE
he purpose of this course is to help students develop and learn to apply e skills needed to sell real estate. Students taking this class will learn a reat deal about interpersonal relationships — how people act, react, and teract with each other. Students will also be required to practice (in the assroom) the skills they learn. Emphasizes the practical aspects of sell-g — how to fill out a contract — and less tangible aspects — how to go out getting buyers and sellers to the stage where they are willing to fill ut a contract. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

ES 116
EAL ESTATE FINANCING
his course will prepare the average real estate salesperson to put gether a money package to successfully close a deal. The course will so acquaint students with sources of funds available and the methods nd regulations involved in purchasing, selling, or acting as an agent to ell real estate. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

ES 117
EAL ESTATE MANAGEMENT
his course introduces the student to the basic managerial theories and trategies related to the real estate field. This course can be used for the eal estate broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division ermission.*

ES 119
EAL ESTATE MATH
his course covers the basic mathematics used by real estate profes-ionals. Course credits can be applied only toward the broker's license. lowever, the subject matter covered is ideal as a review for individuals aking the salesperson's exam. 3 Cr. (3-0). *Prerequisite: RES 112 or Divi-ion permission.*

ES 120
EAL ESTATE TAXES
his course will emphasize the basic tax structure in our economy as it elates to the real estate field. This course can be used for the salesper-on's and broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division ermission.*

RES 212
REAL ESTATE PRINCIPLES
This course is a more advanced in-depth study of the principles of financ·ing, transferring property, contracts and various types of ownership as they relate to real estate. This course can be used for both the salesper·son's and broker's license. 3 Cr (3-0). *Prerequisite· RES 112 or Division permission.*

See page 80 for information on the Real Estate sale's and broker's examinations.

RETAIL MANAGEMENT (MKT)

MKT 233
RETAIL PRINCIPLES
Designed to familiarize students with the field of retailing. Provides the technical and theoretical knowledge necessary for retail management jobs. 3 Cr. (3-0).

MKT 240
MARKETING
This course illustrates various methods of merchandising and the channel of distribution from producer or manufacturer to the consumer. Govern-ment regulations, pricing, cost and branding, influence of buyers and consumers on marketing programs and current marketing trends are presented. 3 Cr. (3-0).

MKT 243
SALES
Examines the positive role personal selling plays in the American economy and documents the extent to which "sales" has aided in our economic growth. This course is designed to show the role of selling in helping customers recognize and satisfy wants and needs and explains how this satisfaction can lead to a higher standard of living. 3 Cr. (3-0).

MKT 245
FASHION MERCHANDISING AND DISPLAY
Designed to familiarize students with the field of fashion merchandising. Provides the technical and theoretical knowledge necessary for fashion management. Includes three laboratory hours per week during which students work on window displays and fashion design. 4 Cr. (3-3).

MKT 247
RETAIL MANAGEMENT
Continues to build students' knowledge of the activities needed to make a retail business succeed. Emphasizes quantitative analysis of management problems and information systems through electronic data processing. Retailing is studied from the viewpoint of a middle manager in a larger retail firm and as it applies to owners of retail establishments. 3 Cr. (3-0).

SECRETARIAL SCIENCE (CLS, SEC)

CLS 717
CLERICAL PROCEDURES
Office procedures and management of general office work. Includes handling mail, filing, reception work, office machines, office communica-tion systems, spelling, vocabulary. Development of personal qualities necessary for success, self-evaluation, good work habits and attitudes, and personality development. 7 Cr. (5-6).

CLS 728
CLERICAL WORKSHOP
Includes instruction in typing reports, office forms, statistics, production work, payroll procedures, machine calculation, and word processing equipment. Use of the common types of duplicating equipment. Students will become familiar with commonly used dictation and transcription equipment. Practice office assignments and situations are included. 8 Cr. (6-6). *Prerequisites: CLS 717, SEC 111.*

SEC 111
TYPEWRITING I
Develops basic typing skills. Includes introduction to the typewriter; development of touch typewriting; development of speed and accuracy; introduction to business letters, memos, and tabulations; development of proper attitudes. Taught in the Individualized Learning Center, which permits the student to proceed at his/her own pace, moving from lesson to lesson as skills are mastered. 3 Cr. (2-3).

SEC 114
SHORTHAND I
Basic theory and techniques of Gregg Shorthand. Emphasizes outlines, proper techniques, and attainment of fluency in reading and writing shorthand. Dictation is given at 60+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. 3 Cr. (2-3).

SEC 121
TYPEWRITING II
Advances the student's ability in typewriting. Emphasizes production typing; tabulation; special skill techniques; advanced letter writing; forms, documents, and other routine typewriting duties. Taught in the Individualized Learning Center, which permits the student to proceed at his/her own pace, moving from lesson to lesson as skills are mastered. 3 Cr. (2-3). *Prerequisite: SEC 111. Students may also qualify by passing the appropriate test.*

SEC 124
SHORTHAND II
Continuation of SEC 114. Emphasizes the development of skills in taking dictation and transcription. Typewritten transcription is included. Dictation is given at 80+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. 3 Cr. (2-3). *Prerequisites: SEC 111 and SEC 114. Students may also qualify by passing the appropriate test.*

SEC 129
SECRETARIAL PROCEDURES
Introduction to the responsibilities and the opportunities of the secretarial field. Emphasizes administrative aspects of secretarial work. Includes office forms, mailing operations, filing, communications, business machines, duplicating processes, and dictating and transcribing machines. 3 Cr. (2-3). *Prerequisite: SEC 111. Students may also qualify by passing the appropriate test.*

SEC 231
TYPEWRITING III
Designed for the typist with a sustained high level, accurate straight-copy speed. Provides an opportunity to master basic typing formats, to review and apply technical information, and to develop creativity and originality. Taught in the Individualized Learning Center, this course includes higher levels of typing — following directions, editing copy, composing letters, creating arrangements of tables — and other involved typewriting projects which the student will master at his/her own pace. 3 Cr. (2-3). *Prerequisite: SEC 121. Students may also qualify by passing the appropriate test.*

SEC 234
SHORTHAND WORKSHOP
Intensive review of advanced Gregg Shorthand with emphasis on executive, legal, or medical vocabulary. Dictation is given at 100+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. Students are given intensive training in the transcription of letters and specialized forms. Development of supplemental skills necessary for secretarial responsibilities is emphasized. 6 Cr. (4-6). *Prerequisite: SEC 124.*

SEC 244
SECRETARIAL WORKSHOP
Integrates all phases of advanced dictation, transcription, and secretarial skills. Dictation is given at 100+ words per minute for three minutes, to be transcribed with a 98+ percent level of accuracy. Includes intensive office-level practice. 8 Cr. (5-9). *Prerequisite: SEC 234.*

SEC 245
OFFICE INTERNSHIP
Practical experience through work assignments in offices. 1 Cr. (0-5).

SEC 509
TYPEWRITING
For non-business students. Includes touch typewriting, speed and control, familiarization with business letters, memos, reports, and personal typing. Taught in the Individualized Learning Center, which permits the student to proceed at his/her own pace, moving from lesson to lesson as skills are mastered. 1 Cr. (0-3).

SERVICE AND OPERATION OF HEAVY CONSTRUCTION EQUIPMENT (SOE)

SOE 713
SERVICE AND OPERATION I (8 weeks)
Introduction to heavy equipment mechanics. Begins with basic tools, micrometers and lifting equipment. Includes complete engine nomenclature (terms used to describe parts of the engine) and engine overhaul. 7 Cr. (7-18).

SOE 714
SERVICE AND OPERATION II (8 weeks)
Basic vehicle electrical systems. Includes electro-magnetism, ignition circuits, starting circuits, and electric troubleshooting. 7 Cr. (7-18).

SOE 725
SERVICE AND OPERATION III (8 weeks)
Introduction to the maintenance and repair of various types of clutches, gear type transmissions, and differentials. Maintenance of seals and anti-friction bearings. 7 Cr. (8-17).

SOE 726
SERVICE AND OPERATION IV (8 weeks)
Introduction to the maintenance and repair of final drives, undercarriages, tracks, and tires. Maintenance and repair of brake systems. 7 Cr. (8-17).

SOE 837
SERVICE AND OPERATION V (8 weeks)
Introduction to the various types of hydraulic systems used on heavy construction equipment. Includes pumps, motors, valves, cylinders, etc. 7 Cr. (8-17).

SOE 838
SERVICE AND OPERATION VI (8 weeks)
Introduction to the service, repair, testing, and troubleshooting of torque converters and power shift transmissions. Introduction to the hydrostatic transmission. Testing hydrostatic transmissions. Advanced electrical circuits and troubleshooting. 7 Cr. (8-17).

SOE 847
SERVICE AND OPERATION VII (8 weeks)
Introduction to basic construction surveying, construction blueprint reading, and grade stake reading. Operating various types of heavy construction equipment — dozers, loaders, motor graders, and scrapers. Service of machines operated 6 Cr. (6-19).

SOE 848
SERVICE AND OPERATION VIII (8 weeks)
A continuation of SOE 847. Emphasizes developing skills as an equipment operator or mechanic. 6 Cr. (6-19).

SOCIOLOGY (SOC)

SOC 111
INTRODUCTION TO SOCIOLOGY
An introduction to the basic concepts and methods used in studying the group life of human beings. Students analyze forces which shape social practice and norms and explore alternative social practices. 3 Cr. (3-0).

SOC 112
GENERAL ANTHROPOLOGY
Survey of the physical and cultural evolution of humans and society. Emphasizes the relationship of the human physical structure to behavior and comparative descriptions of recent primitive societies. 3 Cr. (3-0).

SOC 231
MARRIAGE AND THE FAMILY
Examination of traditional and contemporary American marital and family relationships. Students examine expectations, roles, and values in various marriage and family patterns and explore forces promoting change. 3 Cr. (3-0).

SOC 241
URBAN SOCIOLOGY
The concept of community as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasizes characteristic institutions and problems of modern city life. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 242
CRIMINOLOGY
The social relationships and situations involved in the causes and prevention of crime and juvenile delinquency. Particular emphasis on the functioning of the U.S. criminal justice system. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 290
SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

SPANISH (SPA)

SPA 111
BEGINNING SPANISH I
Basic grammar and language structure. Comprehension, speaking and reading. Emphasizes pronunciation and accent. 3 Cr. (3-0).

SPA 121
BEGINNING SPANISH II
Continuation of SPA 111. 3 Cr. (3-0). *Prerequisite: SPA 111.*

SURGICAL TECHNOLOGY (SRT)

SRT 110
PRINCIPLES OF SURGICAL TECHNOLOGY I
A study of the surgical process including aspects of the operating room environment; patient care and the practice of surgery; medications used during surgery; pre, intra and post-operative techniques of surgery; micro-organisms and how they affect the human body; the physical, spiritual, psychological needs and medico-legal rights of the patient. 12 Cr. (9-9).

SRT 120
PRINCIPLES OF SURGICAL TECHNOLOGY II
An in-depth study of the various surgical specialties and associated surgical procedures. Anatomy and physiology and the disease conditions of the body will be reviewed. 4 Cr. (4-0). *Prerequisites: SRT 110, BIO 110, MTR 101.*

SRT 121
CLINICAL SURGICAL TECHNOLOGY
Application of lecture and laboratory materials in the hospital surgical suite to gain practical experience in general and specialty surgical procedures. In-depth study in procedures, instrumentation and equipment. 10 Cr. (2-24). *Prerequisites: SRT 110, BIO 110, MTR 101.*

TOOL DESIGN TECHNOLOGY (TDT)

TDT 231
TOOL DRAFTING (8 weeks)
Transition between mechanical drafting and tool design; drawings, techniques; purchased parts; standards of shop drawings; material lists; designing cutting tools. 4 Cr. (4-12). *Prerequisite: EDT 101 or EDT 111.*

TDT 232
FIXTURE DESIGN (8 weeks)
Designing leaf and tumble jigs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates. 4 Cr. (4-12). *Prerequisite: TDT 231.*

TDT 241
GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing programs for point to point and contouring tape controlled machines. Design of plug, snap, ring, flush pin depth, length, and indicating gages. 4 Cr. (4-12). *Prerequisite: EDT 101 or EDT 111.*

TDT 242
DIE DESIGN (8 weeks)
Designing cutting, forming, drawing, and cavity dies; simple, progressive and compound arrangements. 4 Cr. (4-12). *Prerequisite: EDT 101 or EDT 111.*

WELDING (WEL)

WEL 701
ACETYLENE WELDING
Basic acetylene welding for plumbing students. 2 Cr. (0-5).

WEL 703
ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 2 Cr. (0-6).

WEL 712
ACETYLENE WELDING
Theory and practice in welding sheet metal and mild steel plate; oxyacetylene cutting; pipe welding, welding and brazing ferrous and nonferrous metals; weld testing; shop safety. 13 Cr. (7-18).

WEL 722
ELECTRIC WELDING
Principles and applications of basic electric welding. The use of various types of electrodes for welding steel plate in all positions, pipe welding; cast iron welding, weld testing. 13 Cr. (7-18).

WEL 832
INERT GAS WELDING
Theories and practice in manual inert gas shield techniques (TIG) and in the short arc, high speed, semi-automatic, metallic arc process (MIG). 13 Cr. (7-18).

WEL 842
WELDING (ADVANCED)
Practical theory and application of weldments to meet specifications of AWS, API and ASME codes. All position welding of heavy plate and pipe; testing and weld specimens. 13 Cr. (7-18).

WOOD PRODUCTS TECHNOLOGY (WPT)

WPT 111
WOOD PROPERTIES AND UTILIZATION
Physical characteristics, identification and use of wood. Includes machining and manufacturing major wood products derived from commercially important species. 3 Cr. (2-3).

WPT 121
LUMBER AND LOG GRADING
Separating and grading (sorting wood on the basis of quality) hardwood and softwood lumber according to wood industry standards. Sorting hardwood and softwood logs on the basis of lumber grade to assure high quality lumber products. 3 Cr. (1-6).

WPT 122
SAWMILLING I
Identification and layout of major parts of a sawmill. Maintenance and safe operation of the equipment used to saw logs into lumber. 3 Cr. (1-6).

WPT 123
LUMBER DRYING
The process of drying lumber by natural or artificial methods. Includes layout of the lumber yard, dry kiln operation, and the handling and storage of green lumber. 3 Cr. (2-3).

WPT 231
WOOD INDUSTRY CO-OP/INTERNSHIP
Practical experience in a planned, supervised program of work in a wood products industry. 3 Cr. (200 Hr.)

WPT 232
SAWMILLING II
A continuation of Sawmilling I. Emphasizes practical skills in sawing lumber to grade in a safe and economical manner. 3 Cr. (1-6).

WPT 233
QUALITY CONTROL
The characteristics of selected sawmill products — air and kiln dry products, veneer and plywood, composition board, furniture and cabinetry, and chemically treated wood products. Includes the methods and equipment used to measure these characteristics and quality control in the wood industry. 3 Cr. (2-3).

WPT 243
PRODUCTION MANAGEMENT
Introduction to the processes of obtaining, manufacturing and marketing wood products in order to produce a profit. 3 Cr. (2-3).

WPT 244
EQUIPMENT AND MACHINERY
A survey of the basic types of machinery used in wood processing and their relationship to the profitable management of a business. 3 Cr. (2-3).

WORD PROCESSING (WDP)

WDP 121
WORD PROCESSING I
Trains entry-level word processing operators on various types of power typewriters and output devices. Operation of mag card, tape, and electronic typewriters is covered. Training is also provided on stand-alone machines using floppy disks and CRT screens. Operation of an ink-jet printer is included. 3 Cr. (3-0). *Prerequisite: SEC 111 or SEC 509.*

WDP 231
MACHINE TRANSCRIPTION AND OFFICE PROCEDURES
Effective transcription of machine recorded information using word processing equipment is emphasized. Introduction to machine transcription is given on the Audio Visual Tutorial (AVT) System. Equipment, efficient techniques and procedures, proofreading skills and effective dictation are covered. Various office forms, mailing operations, filing, and operation of office equipment is also covered. 3 Cr. (2-3). *Prerequisite: WDP 121.*

WDP 232
WORD PROCESSING II
Further develops the skills and knowledge acquired in Word Processing I. Emphasizes advanced machine features, including communication, file manipulation and the interface between various word processing machines. Includes training on text-editing features of the computer. 3 Cr. (3-0). *Prerequisite: WDP 121.*

WDP 241
WORD PROCESSING III
The administrative and managerial aspects of operating a word processing center are emphasized. Review of the literature, feasibility studies, equipment selection, procedure manuals, center design and personnel matters are covered. The goal is to develop operating skills, decision-making and human relations skills to the levels required for employment. 3 Cr. (3-0). *Prerequisite: WDP 232.*

WDP 242
WORD PROCESSING INTERNSHIP
"Live" work experience on word processing equipment either at the College or in a cooperating business. Cooperative work experience (co-op) may be substituted. 3 Cr. (0-15). *Prerequisite: WDP 232.*

EDUCATIONAL SERVICES

Orientation

Prospective students participate in an orientation program designed to introduce them to the college community and its various services and activities. Students also schedule the appropriate academic courses for their first semester.

Counseling, Career Development and Placement

Counseling, Career Development and Placement is located in Room 157, Learning Resources Center, adjacent to the Library. Counseling, Career Development and Placement houses a wide variety of occupational and educational information, including pamphlets, booklets, film strips and other career library resources. Staff members are available to work with individuals as they use these materials and to provide counseling for those who need assistance in career decision making. Other services include programs in resume writing, interview training, and job search strategies. Counseling, Career Development and Placement is open to both students and non-students.

Counseling and Career Development

Staff are available to help students with personal, academic, and career problems.

Advisors: Each student is assigned an academic advisor who will help the student schedule courses. The advisor is usually an instructor in the student's program area. Students should discuss academic concerns or problems with their advisor.

Counselors: Counselors are available to aid students in resolving many types of problems. Such problems may involve social, emotional, vocational, and personal concerns. Any need or concern which is perceived by the student as important will be viewed in the same way by the counselor. Information shared with a counselor will be held in confidence.

College Transfer

Counseling, Career Development and Placement also assists students who need advice about transferring to other educational institutions. We keep a complete file of college catalogs and have statistics on various programs into which our students have transferred.

Placement Services

Placement services are designed to aid the prospective graduate seeking employment and alumni interested in career and employment information. Counseling, Career Development and Placement maintains a file of full and part-time job opportunities as well as addresses of prospective employers. A library of company literature and applications is maintained in the office for students' use. Information on full and part-time job openings is also published regularly in *The SPOTLIGHT* (student newspaper).

The Counseling, Career Development and Placement Office schedules on-campus interviews for companies which come to the College to recruit prospective graduates. Companies recruiting on campus include a number of leading industries from across the country. On-campus recruitment usually takes place from September through December and from February through April. Information on these interviews is announced in *The SPOTLIGHT* and in the *New Week News*.

Placement seminars are held each semester, just prior to graduation, for prospective graduates. During these seminars sample letters of application and resumes are distributed. Students learn how to prepare for job interviews and receive information on employment trends in various parts of the country. During the seminars, students also provide information for their placement cards at the College.

Counseling, Career Development and Placement also publishes a graduate placement report in October of each year. The report shows the number of students, by program, who have obtained jobs and the average salaries of graduates one year after graduation. The most recent survey shows (based on an 81 percent return rate) that 94 percent were employed and continuing their education. Enrolled or prospective students and other interested persons may review this report in the Admissions Office, Academic Center, Room 104, or in Counseling, Career Development and Placement, Learning Resources Center, Room 157.

CAMPUS LIFE

The College's activities and athletics programs will give you the chance to meet other students, faculty and staff in a friendly relaxed environment. These activities also provide opportunities to gain leadership skills and to pursue special interests.

Army Reserve Officers Training Corps (ROTC)

Students may enroll in the Army's Reserve Officers' Training Corps (ROTC) Program. All qualified freshmen and sophomore men and women are eligible to enroll, without obligation, in the basic course and can compete for full tuition and fees Army ROTC scholarships.

The advance course—the junior and senior years—will be taken at a four-year institution after the student transfers. Veterans of enlisted service with any of the Armed Forces and members of the Army National Guard or Reserve, may qualify for the advanced course leading to an Army Reserve or National Guard commission upon graduation from the College and the opportunity for active duty after completion of undergraduate studies elsewhere.

Successful completion of Army ROTC will be entered upon the student's permanent academic record but the College will not grant academic credit.

For additional information on the Army ROTC program contact the Director of Counseling, Career Development and Placement, Learning Resources Center, Room 157 or the ROTC Department at Bucknell University (call collect: (717) 524-1100).

Athletics

The intercollegiate athletics program at The Williamsport Area Community College includes men's basketball and coeducational golf, tennis and cross country. The College is a member of the "Eastern Pennsylvania Collegiate Conference," which consists of nine two-year colleges. The "EPCC" and the "Skyline Conference" (two-year colleges in Western Pennsylvania) meet to determine a state championship in each sport.

The College also offers a well-balanced intramural program. The program includes team and individual sports and offers opportunities to participate in both competitive and non-competitive activities. Intramural sports include badminton, basketball, bowling, flag football, soccer, softball, table tennis, volleyball, wrestling and weight lifting.

Clubs

New student clubs and organizations are constantly being formed. The following clubs are currently recognized:

Agribusiness Club
Alpha Omega Fellowship
Alpha Pi Delta (Architectural)
Alumni Association
Artists Unlimited
Biology Club
Chi Gamma Iota (Veterans) (inactive)
Cinema Club (inactive)
Circle K
Civil Engineering Technology Club
Communications Club
Computer Science Club
Delta Phi Omega (Electronics) (pending approval)
Diesel Power Club (inactive)
Food & Hospitality Student Management Organization
Forestry Technician Association
Frisbee (inactive)
Gamma Epsilon Tau (Graphic Arts)
Horticulture Technicians Association
International Relations Club (inactive)
Mechanical Engineering Club
Multi-Cultural Society (pending approval)
New Life Fellowship (inactive)
Northcentral Pennsylvania Chapter of the Construction Specifications Institute (Architectural)

uting Club
hi Beta Lambda (Business)
hotography Club (inactive)
lumbers Club (inactive)
ifle and Pistol Club (inactive)
ervice and Operation of Heavy Equipment Association
igma Pi Omega (Service organization)
ki Club
ports Car Club (inactive)
POTLIGHT Staff (Student newspaper)
tudent American Dental Hygienists Association
tudent Government Association
tudent Nurses of The Williamsport Area Community College (SNOW)
tudent Pennsylvania State Education Association (inactive)
tudent Society of Manufacturing and Engineering
able Tennis Club (inactive)
heater Ensemble (inactive)
arsity Club
Villiamsport Area Community College Band (inactive)

College Colors and Nickname

he College colors, gold and burgundy, and the ickname, Wildcats, were selected by popular vote of he students.

Publications

The SPOTLIGHT, the College's student newspaper, is ublished at regular intervals throughout the College ear by students.

The *Student Handbook* provides information on student events, regulations, and student services.

New Week News is a newsletter issued several times weekly which keeps the student body and faculty nformed on current issues, announcements, programs, and activities that affect the College.

W.A.C.C. After Dark is a newsletter issued every other week by Academic Affairs. The newsletter includes nformation on courses, programs, and activities for evening students.

Social/Cultural/Recreational Activities

As a student you'll have opportunities to participate in a variety of activities sponsored by the College. These include:

- The Student Government Association sponsors a variety of educational and recreational activities throughout the year—including skiing, ice skating, tobogganing, roller skating, leadership training and coffee houses.

- The Special Events Committee offers cultural and special programs designed to appeal to students, staff and the community. Programs range from lectures and theater to the annual Bluegrass Festival.

- The Office of the Coordinator of Intramural Athletics and College Activities schedules movies, lectures, special activities related to College programs and courses, and recreational and intramural activities.

- Student organizations sponsor special activities and service projects throughout the year.

Student Government

Participation in the Student Government Association offers students the opportunity to develop leadership skills while contributing to the well-being of the College and the student body.

The goals of the Student Government Association are:

1. To advocate student needs and represent the student body in matters related to College policy and activities.
2. To promote opportunities for the educational, personal, social and cultural growth of all students.
3. To demonstrate concern for educational quality and physical safety in the College's instructional programs.
4. To advocate effective communication among all levels of the College community.
5. To promote the College's reputation and encourage respect for the College's environment.

The SGA office is located in Room A-138 of the Lifelong Education Center (ext. 248). Students interested in participating in SGA should contact an SGA officer, their faculty advisor or the Coordinator of Intramural Athletics and College Activities in Room 108 of the Gymnasium.

ACADEMIC INFORMATION

Classification of Students

Full-Time: A full-time student is one who carries 12 or more credits. Sixteen hours of lecture/demonstration, or 48 hours of shop/lab, equal one credit.

Part-Time: A degree or certificate candidate who carries fewer than 12 credits per semester is enrolled as a part-time student.

Non-Degree: A non-degree student is one who is not enrolled in a degree or certificate program. Non-degree students can select courses without regard to degree or certificate requirements. Non-degree students are not eligible for financial aid. They are permitted to schedule classes on a first-come, first-served basis (after currently enrolled students have been given the opportunity to schedule classes). Non-degree students must complete an "Admissions Application" form the first time they schedule classes, but are not required to pay the application fee.

Special Student: A handicapped student who cannot meet some of the requirements in certain shop programs is awarded a special certificate. It is not awarded to a student who may have failed to meet the requirements of a certificate program. Students must notify the College — PRIOR TO BEGINNING A PROGRAM — if they want to complete only part of the program and earn a special certificate. Exceptions will be made only for a student who becomes handicapped while enrolled in a certificate program.

Students age 18 or older who do not have a high school diploma or the equivalent may also be classified as "special students."

Satisfactory Progress: As long as a postsecondary student is officially enrolled and officially permitted to continue his/her studies toward a degree or certificate at the College, the student will be considered to be making satisfactory progress. Students receiving financial aid must meet additional criteria as explained in the Financial Aid section of this catalog (page 12) in order to continue to be eligible to receive financial aid.

Scheduling/Registration

Because the number of students who can register for any class is limited, all students should schedule classes during the announced scheduling period. The College strongly urges all students to complete their registration, including payment of all fees, before the announced day of Late Registration for each semester. On the day of Late Registration students may schedule classes on a first-come/first-served basis. The College does not guarantee any student the right to register after Late Registration day.

Credit Load

The academic year is divided into two semesters of approximately 16 weeks each. The normal full-time load per semester is 12 to 18 credit-hours. Students should allow an average of at least two hours preparation for each credit-hour of course work.

There are two sessions of varying length offered during the summer (May-August). For purposes of enrollment verification a student is considered to be enrolled full-time during the summer if his/her credit load totals 12 or more credits during both summer sessions.

Academic Overload

An academic/credit overload occurs when a student enrolls for more than 18 credits per semester (except for students in programs which require more than 18 credits per semester). In a summer session, an academic overload occurs when a student enrolls in more than two courses (6-8 credits) at the same time.

Students who want to schedule a credit overload must obtain permission from the Division Director of the program in which they are enrolled.

A student must have earned a 3.00 cumulative grade point average or a 3.00 average the previous semester in order to qualify to schedule a credit overload. Exceptions must be approved by the Dean of Academic Affairs or his/her designee.

Change of Course

After the official registration period is over, the student may make adjustments in his/her schedule through the process of adding and/or dropping courses.

Dropping a Course: A student may drop a credit course during the first three weeks — or the first 20 percent of instruction — of the term by having his/her advisor complete the appropriate section of a "Student

Status Change" form. The instructor of the course being dropped and the advisor must sign the form. The course will not appear on the student's academic record. After the third week (or equivalent) the student must withdraw from the course. (See Terminations, Withdrawals and Refunds, page 127.)

Adding a Course: A student may add a course only during the first week of classes (two days in Summer Term) by having his/her advisor complete and sign the appropriate portion of a "Student Status Change" form.

The approval of the appropriate Division Director and the Associate Dean must be obtained if a course is added after the first week of classes.

Developmental courses and any related course work required may be dropped or added until the end of the third week of classes.

The Dean of Academic Affairs or his/her designee may make exceptions in special circumstances.

Change of Program

A change of program may be made at the beginning of any semester. Currently enrolled students who wish to change from one program of study to another must follow the steps below.

1. Complete an "Admission Application" and submit it to the Admissions Office. Acceptance into the new program will be based on sponsorship status and on the date the applicant's file is complete in the Admissions Office.

2. Complete a "Curriculum/Program Change" form and obtain all required signatures. Submit the form to the Student Records Office.

When a student changes his/her program, all credits earned in the prior program will be evaluated for transfer to the new program. All courses will appear on the student's transcript. Only courses applicable to the new program will be used to calculate the student's new cumulative grade point average.

Repeating a "D" or "F" Course

Students may repeat a course in which they earned a grade of "D" or "F." However, they must improve the grade of the repeated course to affect their cumulative grade point average. If the student repeats the course at The Williamsport Area Community College and improves his/her grade, both grades will appear on the permanent record card with the higher grade used in calculating the cumulative grade point average. If the student repeats the equivalent course at another institution and transfers the course to the College (subject to Transfer Policy, see page 7), the original grade remains on the transcript but is not included in the semester or cumulative average. (The credits for the transferred course will not be used in calculating the student's cumulative grade point average.) If the student repeats a course and earns a second "D" or "F", the second grade and credits will not be used in calculating the cumulative grade point average.

Auditing a Course

Auditors are not required to prepare lessons or papers or take examinations, nor do they receive credit for the course. Students are charged full tuition for courses taken on an audit basis.

With the consent of the instructor and the Dean of Academic Affairs, a student may enroll as an auditor in any course that has not exceeded its enrollment quota.

Students must inform the Student Records Office that a course is being taken on an audit basis when they schedule. A student may not change from credit to audit status or from audit to credit status after the beginning of the semester.

Grading System

The College uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade	Interpretation	Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	—
WP	Withdrawn Passing	—
WF	Withdrawn Failing	0
I	Incomplete	—
AU	Audit	—
SP	Satisfactory Progress	—

An instructor may assign an "I", Incomplete, grade to give a student additional time to complete required course work if the student has missed an exceptional number of classes due to accident, illness or other extenuating circumstances. An Incomplete will not be used to extend the time a student has to complete class requirements beyond the normal allotted time.

If a student is awarded a letter grade of "I", the instructor will submit an incomplete grade form with the student's grade roster. The form describes the work which must be completed and gives a deadline for completing the work. The deadline date will be before the end of the following semester. Copies of the incomplete grade form will be sent to the student and his/her advisor. A permanent "F" will be recorded if the work is not completed prior to the end of the following semester.

"SP", Satisfactory Progress, is used for certain students in Developmental Studies courses. "SP", Satisfactory Progress, will be awarded if students do not complete all course requirements but do meet the requirements for "SP" as established in the syllabus for a particular developmental course. Students earning an "SP" will re-enroll in the same course. Upon mastery of all course objectives, the student will earn a traditional letter grade (in the semester in which the course requirements were met).

Grade Reports

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester (during the fall and spring semesters). Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or summer session. The grade report will show all course work completed to date by the student. Students should check the cumulative grade report for accuracy and to be certain they are meeting graduation requirements. To protect the confidentiality of the student's record and in compliance with federal law, *no grades will be given over the phone.*

Since the grade report is also an unofficial copy of their transcript, students may use their grade report when an unofficial transcript is required. (For information on obtaining official transcripts, see page 11).

Cumulative Grade Point Average

A student's cumulative grade point average is computed by dividing the number of grade points by the total number of credits for which the student has earned a grade of A, B, C, D, F, or WF. No other grades in the College's grading system are used in the calculation.

The cumulative grade point average includes: 1) Credit for Williamsport Area Community College courses completed by a student currently enrolled in a degree or certificate program; 2) Credit for Williamsport Area Community College courses previously completed by a student who reenrolls in the same program when such credits are appropriate for the new program; 3) Credit for Williamsport Area Community College courses previously completed by a student who reenrolls in a different program when such courses are appropriate for the new program; 4) Credit for Williamsport Area Community College courses previously completed by a student who changes to a different program when such credits are appropriate for the new program; 5) Credit earned through cross-registration with Lycoming College.

The cumulative grade point average does not include credits from the following: 1) CLEP exams; 2) Advanced Placement; 3) Credit by Exam; 4) Credit for Work/Life Experience; 5) U.S. Armed Forces Institute Credit and Service Credit; 6) Credit transferred to The Williamsport Area Community College from another institution; 7) Credits previously earned by a student who changes to a different Williamsport Area Community College program or who reenrolls in a program when such credit does not meet the current requirements for the new program; 8) Credits for courses in which the student earned a "D" or "F" if the student repeats the course. If the student repeats the course at The Williamsport Area Community College and earns a higher grade, the higher grade will be used in calculating the cumulative grade point average. If the student repeats the equivalent course at another institution and transfers the course to The Williamsport Area Community College, the original grade remains on the transcript but is not included in the cumulative average. (The grade for the transferred course is not included in the cumulative grade point average.)

Withholding Grades

A student's grades and records will not be released if the student has any outstanding loans or fines (for example, parking fines or library fines) at the College or if the student has outstanding obligations to the College for the return/replacement of items such as books, tools or equipment. When a hold is placed on a student's grades, the student will be notified in writing of the hold and of the action needed to release his/her grades or records.

Advanced Placement Credit

The Williamsport Area Community College believes that placing students at the proper educational level will contribute to the student's success in College.

Advanced placement is designed to give students credit for the skills or competencies they have acquired prior to entering College. Students who have completed advanced courses in high school or an area vocational technical school program, as part of military training, and those with prior educational experiences may be eligible for advanced placement. We recommend that applications for advanced placement be submitted by March 15 for students who plan to enroll in the fall semester, by November 15 for students who plan to enroll in the spring semester, and by April 15 for students who plan to enroll in the summer semester.

Students from area vocational technical schools with which the College has Task Level Articulation Agreements can obtain advanced placement on the basis of an instructor-verified list of competencies. Such students must also take the College's reading, English and math placement tests as early as possible so that they can take developmental courses, if needed, in the summer before they begin their regular program.

New students will receive a schedule of advanced placement test offerings showing the date and times when tests will be given. The student should indicate which test(s) he/she wishes to take and return the form to the appropriate Division office.

A copy of the evaluation of the advanced placement test or other assessment will be sent to the student. A fee of $25 per course will be charged when credit from advanced placement testing is entered on the transcript.* Credit earned through advanced placement will be shown on the student's transcript after the fee is paid and the student has successfully completed one semester at the College. Up to a maximum of 30 credits may be granted through non-traditional credit evaluation (advanced placement, credit by exam, and work/life experience). Advanced placement credit is not used in calculating the student's cumulative grade point average. Only the course number, title, and number of credits will be entered on the transcript. No letter grades will be shown.

*The $25 fee will not be charged secondary students assessed externally and for certain developmental courses which are exempt.

Credit By Exam

Students may apply to take any College course by examination. In order to challenge a course by examination, a student must have completed at least 12 credits at The Williamsport Area Community College and have earned a grade point average of 2.00. Application to take a course by examination must be made in writing to the appropriate Division Director. Approval must then be given by the instructor(s) of the course involved and the Division Director. Students who decide to challenge a course after enrolling in it must arrange for testing to take place prior to the third week of instruction (or the equivalent).

If approval is granted, a fee of $25 must be paid at the Bursar's Office prior to each examination. No examination will be prepared or administered until the student presents the $25 receipt. The examination fee will be waived for students seeking credit for ENL 111 (English Composition I) or RDG 101 (College Reading and Study Skills) as a result of outstanding performance in the respective developmental counterpart, i.e., ENL 011 (Basic English) or RDG 010 (Reading Improvement).

The examination is prepared, administered (at the time set by the Division Director), and evaluated by the instructor(s) of the course. A copy of the result of the examination will be sent to the student. When a student passes the examination for the course, the course number, title, and number of credits only will be entered on the student's transcript. (No letter grades will be listed on the transcript.) A maximum of 30 credits may be earned through non-traditional credit evaluation (work and/or life experience, advanced placement, credit by exam). Credit by exam may not be used to remove a D, F, or WF grade. An examination in a specific subject may be taken only once. All exceptions to the above requirements must be approved by the Dean of Academic Affairs or his/her designee.

Credit for Work and/or Life Experience

The College recognizes that many individuals acquire rich academic and technical experiences through working and/or living in a particular situation. Students who have been accepted to the College and who feel their work or living experiences warrant consideration for academic credit should apply in writing to the Division Director responsible for the course(s) involved. The application must include evidence and rationale for granting credit.

The Division Director will appoint a committee to assess the candidate's educational and work background. The student will be asked to document his/her work and life experiences and to show that the experiences are equal to a course(s) offered at the College. The committee will also interview the student. The committee will recommend the number of credits to be awarded. A fee of $25 per course will be charged for the evaluation of credit.

A copy of the evaluation of work and/or life experience will be sent to the student. Credit earned through work/life experience will be shown on the student's transcript after he/she earns 12 credits at the College. Credit for work/life experience will not be used in calculating the student's cumulative grade point average. No letter grade will be listed on the student's transcript. Up to a maximum of 30 credits may be earned through non-traditional credit evaluation (work and/or life experience, advanced placement, credit by exam). All exceptions to the above requirements must be approved by the Dean of Academic Affairs or his/her designee.

Cooperative Education

Cooperative Education (co-op) offers students the opportunity to participate in supervised periods of relevant and meaningful employment. While on co-op assignment, students work as regular employees of the co-op employer, receive vocational counseling, and earn academic credit for knowledge and/or skills acquired from their work experience. Co-op may be used to replace or supplement required courses in most programs.

The following options are available to qualified students in most programs:

1. Alternating Plan: Students rotate periods of full-time work and full-time on-campus study.

2. Parallel Plan: Students work part time and attend regular classes during the same semester or summer session.

3. Summer Plan: Students work full time during a summer session followed by a parallel plan co-op during the following semesters.

4. Career Advancement Plan: Students attend college on a part-time basis while working either full or part time at their regular (not a "co-op") job. Designed for employed students.

5. APCO Plan (Advance Placement with the Co-op Option): Students who have participated in cooperative education while completing a related vo-tech program receive advanced placement and are encouraged to continue part or full-time co-op while attending college.

Variations of the above options are possible, depending upon job and College requirements. Co-op placements range from eight weeks to a full semester or summer of 15-16 weeks.

In order to participate in Cooperative Education, a student must have successfully completed a minimum of one full semester (12 credits) or its equivalent and must maintain a cumulative average of 2.00 or better. (A 2.50 average in courses related to the student's program is recommended.)

The Dean of Academic Affairs or his/her designee may waive these requirements in the following situations:

1. If the College determines that the student has acquired competencies — through previous training and/or experience — which are equivalent to those provided during one full semester of instruction at the College.

2. When the student's cumulative average falls below the level required and/or recommended due to special circumstances.

A student who is unable to meet and maintain either the behavioral or performance standards established for co-op employment may, with just cause, be withdrawn from co-op employment by either the employer or the College.

A student may withdraw or be withdrawn from co-op employment without penalty if — for any well-founded reason — the work site is deemed to be unsafe or if the level of work assigned does not meet the learning objectives established by the student and the College.

Employer Participation

Employers who can provide full-time or part-time positions which meet the following qualifications are encouraged to participate in the co-op program:

1. The job must provide educational experiences in an area directly related to the student's course of study or career goals.
2. The job must provide learning experiences that will be meaningful and challenging for the student.
3. The job should be relatively secure in order to provide at least one or more full co-op work terms.
4. The employer will cooperate with the College and the student in developing specific learning objectives for each work period.
5. The employer will enter into a training agreement with the College and the student.
6. At the end of the work experience, the employer agrees to evaluate the student's performance and progress toward meeting specific learning objectives.

Specific information can be obtained directly from the student's academic division or by contacting:

Director of Experiential Learning
The Williamsport Area Community College
Room 157, Learning Resources Center
1005 West Third Street
Williamsport, PA 17701-5799
Phone (717) 326-3761, ext. 239

Lycoming Cross-Registration

The Williamsport Area Community College participates in a cross-registration program with Lycoming College. In order to cross-register for courses at Lycoming College, a Williamsport Area Community College student must obtain the permission of his/her advisor and division director, the Dean of Academic Affairs and the academic dean at Lycoming College. In order to participate in this program, students must be enrolled on a full-time basis in a degree or certificate program and must not have completed more than 70 credits. Part-time students are not eligible to participate in this program. Students may cross-register only for courses not offered at The Williamsport Area Community College. Students participating in cross-registration will be responsible for paying any special laboratory fees or charges required for the course.

Grades earned through participation in cross-registration will be recorded on the student's Williamsport Area Community College transcript. Courses completed with a passing grade ("D" or better) will be credited toward graduation. Grades earned in courses taken at Lycoming College will be included in the student's semester and cumulative average. Students may obtain additional information on cross-registration procedures from their advisors or the Student Records Office.

Graduation Requirements

All entering students must exhibit competencies in the basic skills (reading, computation, and written expression) necessary for success in their programs. Students who have not demonstrated these competencies on the college placement tests are required to complete specific courses in order to earn a degree or certificate from The Williamsport Area Community College.

Associate Degree

The successful completion of a two-year program of study — identified as an Associate Degree program in this catalog — at The Williamsport Area Community College leads to an Associate of Applied Science, an Associate of Arts, or an Associate of Applied Arts Degree. To be eligible for an Associate Degree from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete courses required in a specific program of study as set forth in this catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean of Academic Affairs. Only courses numbered 100, 200, 500 and 600 can be applied toward meeting graduation requirements for an associate degree. Only courses numbered 100-299 can be applied to the requirements for an associate degree in General Studies. Courses numbered 001-099, 700 and 800 cannot be used to meet associate degree graduation requirements.

b. Complete a minimum of 30 credits in courses offered by The Williamsport Area Community College. Credit earned by advanced placement, credit by examination, or work/life experience may be included in the 30-credit minimum. A student must be enrolled in courses at The Williamsport Area Community College for at least the last 12 credit hours of a program.
c. Earn at least a "C" average (2.00 cumulative grade point average) in all courses and complete all required courses with a grade of "D" or better.
d. Satisfy health and physical education requirements as stated in a student's curriculum. A student may receive a waiver from physical education based upon the following considerations:
   1. Age - A student must be 27 years of age or over in order to obtain a waiver.
   2. Military Service - The requirement may be waived if the student was on active duty in the Armed Services of the United States for a minimum of at least one year. (See page 8 for conditions and requirements.)
   3. Physical or Medical Reasons - The requirement may be waived because of physical or medical reasons. (Student must have a statement from a medical doctor stating explicitly the reason for the waiver.)
e. Fulfill all financial obligations to the College (including payment of any fines).

Certificates

Certificates will be awarded for the successful completion of a program of study identified as a Certificate program in this catalog. To be eligible for a Certificate from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean of Academic Affairs. Only courses numbered 100 or above can be applied toward meeting graduation requirements. Courses numbered 001-099 cannot be used to meet graduation requirements.
b. Complete at least half of the credits required, including the last semester, in courses offered by the College. This includes credit received for advanced placement, credit by examination, or work/life experience. A student must be enrolled in courses at The Williamsport Area Community College for at least the last 12 credit hours of a program.
c. Earn at least a "C" average (2.00 cumulative grade point average) in all courses and complete all required courses with a grade of "D" or better.
d. Fulfill all financial obligations to the College (including payment of any fines).

Additional Information

If after completing the final semester, the student has not earned all the credits required for a degree or certificate, he/she may, with prior approval of the Dean of Academic Affairs or his/her designee be permitted to take up to six semester credit hours from another accredited college/institution to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Such work must be completed within two years after the last semester in which the student attended classes at The Williamsport Area Community College. After two years, the student must reenroll at The Williamsport Area Community College (See Reenrollment and Transfer Credit, pages 6 and 7.) Only grades of "C" or better are acceptable for such transfer credit. (Grades for transfer credits are not included in the student's cumulative grade point average.)

All exceptions to graduation requirements must be approved by the Dean of Academic Affairs or his/her designee.

Petition to Graduate: In order to graduate a student must report to the Student Records Office and complete a "Petition for Graduation" form during the first five weeks of classes of the semester in which the student intends to graduate. If this form is not submitted, the student's name will not appear on the Graduation Program. In addition, *the student's final transcript will state that the student is a "non-returning" student,* rather than a graduate.

Students who meet graduation requirements in the summer will graduate at the end of the second summer session.

Graduation Fees

Any students who wish to receive an engraved diploma or certificate when they graduate must pay a $5.00 fee when they petition to graduate. If a student orders a diploma or certificate after the advertised date for ordering a diploma (i.e., two months prior to the date of graduation), the student must pay a special processing fee of $10.00.

If a graduating student does not wish to receive an engraved certificate or diploma, he/she will not be charged the graduation fee but must still file a petition.

The Dean's Honor List

The honor list is announced by the Dean at the completion of each semester. The list will include only those full-time students who have a semester grade point average of 3.50 or better.

Terminations, Withdrawals and Refunds

Student Termination

If a student finds it necessary to withdraw from the College for any reason, the student must:

1. Officially withdraw from each course by completing the "Student Status Change" form.
2. If the student is also applying for a refund, the "Request for Refund" form must be filled out and submitted with the "Student Status Change" form.
3. Satisfactorily account for all property issued by the College.
4. Settle all outstanding College obligations.

Students who do not officially withdraw from the College in the manner described above will receive the grade of "F" or "WF" in all courses.

College Termination

The College reserves the right to terminate enrollment of any student or to withhold the degree of any student, if, in the opinion of College authorities, his/her further association is not in the best interests of the student or the College. Specific situations in which the College may terminate a student include, but are not limited to:

1. Failure to meet financial obligations.
2. Failure to meet requirements or to complete objectives in a given program and/or course.
3. Failure to demonstrate safe practices.

Recommended procedures for appealing questions on academic evaluation are given in the *Student Handbook*.

Withdrawal From A Course

Student Withdrawal — After the official drop/add period for the term (the end of the third week or 20 percent of instruction) until the end of the tenth week, or equivalent, for each term, a student may withdraw from a College course with a grade of "W" (unless the student is withdrawn from the course by the College for absenteeism — in which case the student will receive a grade of "WF").

If a student withdraws from a course after the tenth week (or equivalent), the instructor, with the approval of the appropriate Division Director, will award a grade of "WP" or "WF." No credit is given for a "WP" grade. A "WF" grade affects the student's grade point average in the same manner as an "F". If a student stops attending a class without officially withdrawing from the course, the student will receive a grade of "WF" or "F." Students may withdraw from courses until the last day of classes.

Students must complete and submit a "Student Status Change" form to withdraw from a course.

College Withdrawal — When an instructor determines that a student is not adequately meeting course objectives and has missed more than the equivalent of the class hours in one week of instruction, the instructor MAY recommend that the student be withdrawn from the class by the College. The College will withdraw a student from a course for excessive absences only after the first three weeks (or 20 percent of instruction). A grade of "WF" will be recorded on the student's transcript.

Refunds

Charges for tuition are refundable upon official termination from the College. In order to be eligible for a refund, the student must complete all steps given under Student Termination above.

Refunds of tuition will be made according to the following schedule for the fall and spring semesters:

Prior to the first day of classes	100% Refund
First week of classes	80% Refund
Second week of classes	70% Refund
Third week of classes	60% Refund
After third week of classes	No Refund

Refunds will be made according to the following schedule for summer semesters:

Prior to the first week of classes	100% Refund
7% of total instructional hours	80% Refund
13% of total instructional hours	70% Refund
20% of total instructional hours	60% Refund
After 20% of total instructional hours	No Refund

The Dean of Academic Affairs or his/her designee may waive College termination or withdrawal requirements in special circumstances.

Student Conduct

On admission to The Williamsport Area Community College you accept unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus and student judicial procedures is available in the *Student Handbook*. All students are expected to read and follow the policies in the handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of, or being under the influence of alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a grade of "F". For a second offense, the student may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

Attendance Policy

1. Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed because of absence, regardless of the cause, must be made up to the satisfaction of the instructor. Students who know that they will be absent are expected to get assignments from instructors in advance so that the necessary work will be completed before the student leaves, or immediately upon his/her return. This applies to absences for College activity trips as well as absences for other reasons. In all cases of anticipated absence, students should confer with their instructors in advance whenever possible.
2. All faculty are required to record attendance daily.
3. When a student, in the instructor's judgment, is not adequately meeting the course objectives and has missed *more than* the equivalent of the class hours held in one week of instruction, the instructor MAY recommend the student be withdrawn from class by the College.

   If, in the judgment of the instructor, extenuating circumstances are involved (e.g., a death in the family, hospitalization, illness, or serious accident), the following alternatives are available to the student.

   a. To arrange with the instructor's approval a stated plan for meeting course objectives and responsibilities. If completion of the approved plan extends beyond the semester, the student can receive an "I" grade (Incomplete).
   b. Until the end of the tenth week, or equivalent, of each term, the student can withdraw and receive a "W" grade (Withdrawn).
4. Based upon the instructor's recommendation, a decision to withdraw a student from a course MAY be made by the appropriate Division Director. Withdrawal from a course by the College for excessive absences will only be done after the first three weeks of each term or 20 percent of instruction and will be recorded on the student's transcript as a "WF" (Withdrawn Failing).
5. Appeal Process: Students who are withdrawn from a course by the College may appeal the decision within three school days of notification.

   The student may appeal the decision to either the Dean of Academic Affairs OR the Ad Hoc Academic Policy Group consisting of the Dean of Academic Affairs, President of the Student Government Association, and Chairperson of the Academic Standards and Policy Committee.

Academic Probation

Any degree or certificate candidate whose cumulative grade point average is below 2.00 will be placed on academic probation. A student on probation may be required to report to Counseling, Career Development and Placement for special counseling before registering for classes the following semester.

A student may be terminated from the College if his/her *cumulative* grade point average is under 1.50 at the end of the first semester's work, under 1.80 at the end of the

second semester's work, or under 1.90 at the end of the third semester of work. (A semester's work is generally defined as: 1) the courses listed for a semester in a given program, or 2) 15 credits of course work.) The Probation Committee will determine the semester status in special situations.

The Probation Committee meets at the end of each term. The Committee determines the conditions under which students with grade point averages below 2.00 will be permitted to continue at the College. The Committee may also terminate students. Students who are terminated may appeal the action to the Chairperson of the Probation Committee or his/her designee.

Final Examinations

Final examinations may be scheduled by instructors at the end of each semester. A student who is absent from a final examination without good reason is subject to a failing grade.

Developmental Studies Program

The open admissions policy of The Williamsport Area Community College permits most students to enroll in the programs of their choice. However, all entering students must exhibit competencies in the basic skills (reading, computation, and written expression) necessary for success in their programs. Students who have not demonstrated these skills on the college placement tests are required to complete specific courses in order to earn a degree or certificate from The Williamsport Area Community College.

The College will award institutional credit for developmental studies courses (courses numbered 001-099) and the grades earned in those courses will be included in the student's grade point average. Five developmental courses—RDG 101, RDG 102, RDG 103, CHD 100, and CHD 101—carry elective credit and may be used to fulfill a general elective requirement. Developmental courses with institutional credit may not replace any course requirement or elective.

The Developmental Studies program is designed to serve a variety of students:

- —those who lack academic skills and requirements for the curriculum of their choice
- —the "non-traditional" student
- —unemployed adults
- —adults returning to school after a number of years of absence
- —high school dropouts
- —veterans
- —those students referred to the program by instructors who recognize a need for one or more of the program's services
- —those who require assistance and solicit the program services on a "walk-in" basis.

The program consists of courses in academic skills, human development, study skills and career planning.

Students may enter the entire program or part of it as the result of counseling, placement tests, academic record, or personal choice. While in the program, most students will also take courses in their curriculum. One strength of the program is the frequent contact with staff who assist the student with course selection, problem solving, decision making, career planning.

Classwork is designed to promote a successful teaching-learning atmosphere. Varied learning strategies, individualized and self-paced instruction, small group sessions, tutorial and media support are characteristic of the course work.

College Opportunity Programming (COPing)

This program, funded under the Equal Education Opportunity legislation, Act 101, serves students who are academically and financially disadvantaged. COPing students are chosen on the basis of their academic potential, motivation and aspirations. Students receive counseling and tutoring assistance as part of the COPing program.

The COPing Program also includes a four-week summer orientation. Students are in classes for two weeks, studying reading, math and English, and in shop for two weeks, acquiring "hands-on" experience. During the four-week program, students learn about the campus, the College, the staff, the faculty, and each other. This pre-college session makes the first semester easier and more meaningful for students.

For additional information on either the Developmental Studies Program or College Opportunity Programming, contact:

Director of Developmental Studies/Act 101
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701-5799
(717) 326-3761, ext. 266

CENTER FOR LIFELONG EDUCATION

The Center for Lifelong Education provides a variety of educational opportunities and services that complement the College's traditional degree and certificate programming.

Designed primarily to meet the educational needs of adults, the Center for Lifelong Education offers hundreds of vocational, avocational, and personal enrichment courses throughout the year. These courses are taught on the College's central campus in Williamsport as well as at satellite locations throughout the College's service area.

Most of the courses offered through the Center for Lifelong Education are non-credit. They do not involve formal testing, do not offer grades, and may not be used to fulfill requirements in any of the College's credit programs. They do offer students the opportunity to learn new skills, upgrade existing capabilities, develop increased knowledge, or participate in new experiences or activities.

Specialized courses are also available through the Center. Specific courses can be custom-designed to meet the training needs of individual businesses and industries. Continuing professional education courses are offered for those who require such courses in order to maintain licensure or certification. Trips and a variety of outdoor experiences are available through the Wilderness Adventure Program. The educational needs of senior citizens are met through participation in ELDERHOSTEL and the development of special courses and programs. Community service workshops and forums are also presented when there is a need to address specific topics which interest the residents in the College's service area.

The services available through the Center for Lifelong Education reflect its commitment to adult students. The Center is open from 8 a.m. until 10 p.m. Monday through Thursday and from 8 a.m. until 4:30 p.m. on Friday. *W.A.C.C. After Dark* is published and distributed by the Academic Affairs Office to keep evening students informed of important information and events on campus. The Center also serves as a testing site for professional examinations.

All of the programs and services available through the Center are financially self-sustaining. The Center does not receive any financial support from the College's sponsoring school districts. Nevertheless, all courses and services are modestly priced and are very competitive with those offered by other institutions.

The primary goal of the Center for Lifelong Education is to provide high quality, low cost educational opportunities and services — in locations that are accessible — at times that are convenient. For more information or to discuss your educational needs, please visit the Center for Lifelong Education in Room 102 of the Academic Center. If you prefer, you may call the Center at 326-3727. You will receive a warm reception and competent assistance.

SECONDARY VOCATIONAL PROGRAM

The Williamsport Area Community College is the only community college in the state to offer secondary vocational education. The College's Secondary Vocational Program is a unique example of what 13 school districts and a community college can provide for their students and their communities.

The Secondary Vocational Program at The Williamsport Area Community College provides education and training to high school students who want to prepare for employment following graduation as well as those who plan to pursue advanced education or training. High school students enrolled in the program spend one-half of the school year (on a nine-week alternating schedule) at their home high schools where they complete the academic and physical education courses required for high school graduation and half the school year attending vocational/technical classes at the College.

The Secondary Vocational Program offers a combination of classroom work and practical experience. Students work in the College's shops and labs to learn and practice the skills they will need when they begin working. During their senior year many students gain additional experience through participating in the cooperative education program.

In some cases qualified students may be able to begin college level work in selected technological fields during their senior year in high school.

Each Secondary Vocational program is designed to provide students with the skills needed to gain entry-level employment in their field. Graduates of the program who wish to pursue advanced education in their field may be granted advanced placement credit for the skills and competencies acquired in the program.

PROGRAMS

Auto Body Repair
Automotive Mechanics
Aviation Maintenance Technician
Carpentry
Cooperative Education (CAPSTONE)
Cosmetology
Drafting - Architectural/Mechanical
Electrical Construction
Electronics
Forestry
Health Assistant
Horticulture
Machine Shop
Masonry
Quantity Foods Production and Service
Small Engine Repair
Welding

SPONSOR SCHOOL DISTRICTS

Canton Area
East Lycoming
Jersey Shore Area
Keystone Central
Millville Area
Montgomery Area
Montoursville Area
Southern Tioga
South Williamsport Area
Sullivan County
Warrior Run
Wellsboro Area
Williamsport Area

For information on this program, contact the Director of Secondary Vocational Programs at (717) 326-3761, ext. 284, or write to the Office of Secondary Vocational Programs at the College.

COMMENCEMENT AWARDS

Commencement awards give public recognition of achievement in various areas accompanied by cash awards in varying amounts.

ACCOUNTING FACULTY AWARD *for outstanding achievement in accounting to a non-transfer student on the basis of academic standing. Selected by the accounting faculty.*

ANCHOR/DARLING VALVE AWARD *for scholastic achievement in a certificate program in applied arts and sciences.*

AVCO AWARD *for scholastic achievement in humanities and social sciences.*

LEWIS H. BARDO MEMORIAL AWARD *to a student who exemplifies the ideals of Lewis H. Bardo (devotion to duty, helpfulness to others, friendliness, high ideals).*

DALE RUSS BERG AWARD *for proficiency in the operation and use of heavy equipment.*

ELLEN HARDING BERRY NURSING AWARD *presented to the student who has displayed outstanding scholastic achievement and exceptional ability in practicum and communication skills.*

BUSINESS MANAGEMENT FACULTY AWARD *presented to a management student for achievement in the field of study, for leadership qualities shown and cooperation with faculty and peers.*

CENTRAL PENNSYLVANIA CHAPTER OF CHARTERED LIFE UNDERWRITERS' AWARD *to an outstanding student in the two-year associate degree program in the Business and Computer Technologies Division who shows promise in the insurance field.*

CLINTON ELECTRIC SUPPLY COMPANY, INCORPORATED, AWARD *for outstanding electrical student.*

COMMONWEALTH BANK & TRUST COMPANY DATA PROCESSING DEPARTMENT AWARDS *to two outstanding students in the Computer Science Program, one for the two-year associate computer information systems degree and one for the one-year certificate computer operator course, based on the following criteria: scholastic attainment, leadership ability, and contribution to data processing education at The Williamsport Area Community College.*

THE COMPUTER SCIENCE FACULTY AWARDS *to two outstanding students in the Computer Science Program who have excelled in the program and who have exhibited those qualities of leadership, friendship, cooperation, and dedication that will make him/her a valuable addition to the profession. One award will be given to a two-year Computer Information Systems Degree student and one to a one-year Computer Operator Certificate student.*

DEANS' AWARD *for scholastic achievement and service to the College.*

DENTAL HYGIENE FACULTY AWARD *to the student who demonstrates outstanding cooperation, dedication, and professionalism in Dental Hygiene.*

ELIZABETH R. DOWNS AWARD *for secretarial proficiency.*

SARA S. AND LOUIS S. EISEMAN AWARD *to an outstanding graduating student in Business Management or Retail Management who has achieved above average competencies and has demonstrated leadership and concern for others.*

FORKLIFTS, INCORPORATED, AWARD *given to a graduating cooperative education student in the Service and Operation of Heavy Construction Equipment Program who has demonstrated superior competencies in the service area.*

GAMMA EPSILON TAU FRATERNITY AWARD *to the student in the Graphic Arts Program who exhibits outstanding development in skill, capability and leadership, and a willingness to help others.*

THE DR. CLARKE J. HOLLISTER MEMORIAL AWARD *to the graduating student of Dental Hygiene who has displayed outstanding interest and accomplishment in the area of patient education.*

HU-FRIEDY GOLDEN SCALER AWARD *for outstanding student achievement in the Dental Hygiene program.*

KEELER-HOFF SUPPLY COMPANY AWARD, *in memory of the late Samuel H. Hoff, for his understanding and appreciation of the need for plumbing and heating tradespeople to be able to use mathematics effectively and accurately in the application of their craft, to the graduating student in plumbing and heating who excelled in related mathematics and attended college under exceptional conditions.*

THE KOHLER COMPANY AWARD *to the graduating plumbing and heating student with academic excellence and exceptional ability to perform trade related skills.*

DAVID LETSCHER MEMORIAL SCHOLARSHIP AWARD *to a student in the Computer Information Systems program at The Williamsport Area Community College based on the following criteria: scholastic achievement, leadership ability, and dedication as exhibited by David Letscher. The recipient is selected by the Computer Information Systems faculty and the award is donated by the West Branch Data Processing Association.*

LIQUID CARBONIC CORPORATION AWARD *to a graduating Welding student who has demonstrated superior ability and an outstanding attitude.*

LYCOMING COUNTY DENTAL SOCIETY AWARD *to the student who has obtained the highest scholastic standing for the prescribed years of Dental Hygiene study.*

LYCOMING RADIOLOGY ASSOCIATES, LTD. AWARD *for the student who most nearly exemplifies the ideals of selflessness, unusual devotion to duty, sensitivity to the patient's comfort and needs, and service to colleagues, patients and the hospital beyond the ordinary.*

THE JACK MINNIER ACHIEVEMENT AWARD IN BUSINESS *to a graduate of the Business and Computer Technologies Division who earned at least a 3.00 cumulative grade point average and who exhibits personal achievement, personal perseverance, poise, personality, and leadership qualities.*

THE EWING W. MUESELER AWARD *for the student showing the highest degree of proficiency in the Diesel Program.*

THE NORTH CENTRAL DENTAL HYGIENISTS' ASSOCIATION AWARD *to the student who exhibits the greatest enthusiasm and commitment to the Dental Hygiene Program.*

THE NORTHERN CENTRAL BANK ANNUAL AWARD *to a graduating student in the two-year Computer Information Systems Associate Degree curriculum based on the following criteria: the student (1) must plan to enter the data processing field, (2) must have demonstrated excellence in programming and other data processing curriculum, (3) must have maintained an above average total scholastic achievement, and (4) must have demonstrated a high degree of leadership ability.*

PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS' AWARD *for excellence in accounting studies under criteria set forth by the Pennsylvania Institute of Certified Public Accountants in the Business and Computer Technologies Division.*

PENN-YORK LUMBERMEN'S AWARD *for outstanding citizenship and interest in management and wise use of forest resources.*

PHI BETA LAMBDA FRATERNITY AWARD *for performance and dedication to the fraternity.*

PRESIDENT'S AWARD *for leadership and service to the college community.*

PULLMAN POWER PRODUCTS AWARD *for scholastic achievement in an associate degree program in applied arts and sciences, Industrial Technology Division.*

HELEN A. SMITH AWARD *presented to the nursing student who has shown extraordinary achievement in theory, practicum and personal growth.*

CHAPTER 49 OF THE SOCIETY OF MANUFACTURING ENGINEERS (SME) AWARD *a certificate of merit to the SME student-member who has contributed most to the advancement of manufacturing education.*

ROSE STAIMAN MEMORIAL AWARD *to the student who fulfills the following requirements of brotherhood, service to college and community, and scholastic achievement.*

WILLIAM J. STITZEL MEMORIAL AWARD *for the graduate from the heavy construction equipment department who best exemplifies William J. Stitzel's dedication and service to the College and the student body.*

ROBERT G. THOMAS AWARD *for the graduating student who has attained the highest cumulative average in welding.*

TRUSTEES' AWARD *for achievement under exceptional conditions (awarded to two students).*

U. A. LOCAL NO. 810 PLUMBERS AND STEAMFITTERS AWARD *to a graduating student in plumbing and heating, residing in the Local No. 810 membership area, who has shown a strong interest and desire to become a member of the Plumbers and Steamfitters Local No. 810.*

WALL STREET JOURNAL STUDENT ACHIEVEMENT AWARD *to that graduating student demonstrating superior achievement in business administration.*

THE WEST BRANCH RADIOLOGICAL ASSOCIATES AWARD *to an outstanding graduate student of the Radiologic Technology Associate Degree program who has demonstrated high scholastic achievement, competence in and dedication to the profession, and a caring attitude toward all people.*

ADVISORY COMMITTEES

GENERAL ADVISORY COUNCIL

LUTHER ERTEL/President, Nippon Panel Company
MICHAEL R. J. FELIX/Williamsport City Councilman
WILLIAM FISH/Fish Real Estate
GEORGE E. LOGUE/President, George E. Logue, Inc.*
PHILLIP A. PETTER/Merchandising Manager, Reliable Furniture Galleries
SHERMAN REIGLE/Hermance Machine Company
MARGARETTA STEWART
ALBERT STRYCULA/Valley Farms
ROBERT TROISI/Troisi Men's Wear
JOSEPH WENTZLER/Wentzler's Fruit Farm
JOHN YOUNGMAN, JR./Attorney, Candor, Youngman, Gibson and Gault

NORTH CAMPUS

RALPH C. ANTRIM, JR./Administrator, Soldiers and Sailors Memorial Hospital
JAMES DUNHAM
RALPH ELY/Plant Manager, GTE Sylvania
RICHARD W. FORD/Vice President, Commonwealth Bank and Trust Company
WILLIAM K. FRANCIS/President, Citizens and Northern Bank
CRAIG HORTON/ABC Gaines
RICHARD HUMMEL/President, J.P. Ward Foundry
ALAN KECK/Acting Plant Manager, Dresser Industries, Inc.
JACK LEWIS/Wellsboro Chamber of Commerce
ROBERT McCONNELL, SR./Farming Business

COOPERATIVE EDUCATION

AL CLAPPS/Manager, Burger King
RALPH EVANS/Owner, Ralph's Ford Service Center
JAMES FARFAGILIA/Director, West Branch School
ARTHUR L. FRY/Personnel Director, Pennsylvania Department of Transportation
JOSEPH GIUNTA/Manager, Industrial Relations, Stroehmann Brothers Company
RONALD HAMPTON/Supervisor of Computer Programming, Sprout-Waldron Division, Koppers Company, Inc.
SAMUEL HOFF, JR./Owner, Hoff Supply Company
CHRISTOPHER S. LUTZ/Service Technician, Fowler Motors
ELERY W. NAU/Hardware and Electrical Supplier
MARTIN PISH/Teacher, Woodward Township School
TERRY REYNOLDS/Postal Employee, Williamsport Post Office
LINDA WHALEY/Secretary, The Williamsport Area Community College*
ALLEN WOLESLAGLE/Branch Manager, Forklifts, Inc.

COPING (ACT 101)/DEVELOPMENTAL STUDIES

DONALD BENNETT/Local Office Manager, Bureau of Employment Security
EDWARD CLAUDIUS/Guidance Counselor, Montoursville Area High School
JEFFREY CORRIGAN/Personnel Director, Divine Providence Hospital
LINDA HAAS/Personnel Director, Pennsylvania House Furniture
WANDA HOFF/Dietetic Technician*
MICHAEL WILT/Director, Lysock View Nursing Home

COUNSELING, CAREER DEVELOPMENT AND PLACEMENT

MARILYN BEAR/Pennsylvania Power and Light Company
DONALD BENNETT/Local Office Manager, Bureau of Employment Security
HELEN BRINK/Retired Guidance Counselor
EDWARD W. CLAUDIUS/Guidance Counselor, Montoursville Area High School
MARY JANE EVENDEN
WAYNE FAUSNAUGHT/Supervisor of Guidance and Counseling, Williamsport Area School District
DAVID FRANKLIN/Executive Director, Lycoming Association for the Blind
COZY ROBINSON/Teacher
RHONA WILK/Projects with Industry-Placement Counselor, Hope Enterprises Rehabilitation Workshop
MICHAEL J. WILT/Director, Lysock View Nursing Home

*Graduate of The Williamsport Area Community College

BUSINESS AND COMPUTER TECHNOLOGIES

Accounting

R. A. FLANIGAN III/Partner, Eberhart and Flanigan, Certified Public Accountants
DAVID STARK/Accounting Department, BroDart Industries
BARRY STIGER/Branch Manager and Area Administrator, Commonwealth Bank and Trust Company
LEE A. VIARD/Tax Consultant

Business Management

DONALD G. HOLTZMAN/General Manager, Stone Container Corporation
DONALD KARAFFA/Plant Manager, Philips ECG, Inc.
JACK MINNIER/Communications Systems Consultant, AT&T Communications*
TERRY L. NEUBOLD/Chief Executive Officer/Treasurer, The Hartman Agency, Inc.

Computer Information Systems

RONALD BOYCE/Assistant Manager of Data Processing, Commonwealth Bank and Trust Company
HARRY CARLIP/Director - MIS, American Home Foods
PETER M. CODISPOTI/Senior Systems Analyst, C.A. Reed Division of Westvaco
RONALD FENTON/Systems Manager, Woolrich Woolen Mills
CHRIS GIRTON/Controller, Girton Manufacturing Company
JAMES J. GORE/Data Processing Manager, Avco Corporation, Lycoming Division
TIMOTHY GUYER/Divisional MIS Director, The West Company
RONALD HAMPTON/Data Processing Manager, Sprout-Waldron Division, Koppers Co. Inc.
FRITZ HOCKMAN/Controller/DP Manager, Chemcoat
HENRY KLEIN/Manager, Data Processing, Chemcut Corporation
RAY LYNCH/Manager, Data Processing, Pullman Power Products
BLAINE E. MOYER/Senior Vice President of Operations Division, Northern Central Bank and Trust
GLEN WENTZEL/Vice President, Finance, Cenpro, Inc.

Retail Management

ELIZABETH A. BORDEN/Lewisburg Builders Supply
RON PETE/The Smart Shop
DORIS STABINGAS/Sears, Roebuck and Company
JOHN TROISI/Troisi Men's Wear

Secretarial Science

ANNE MARIE McDERMOTT RAY/Public Information Coordinator, The Williamsport Hospital
JOSEPH L. RIDER/Attorney
DR. MARY SCHWEIKLE/Physician
LINDA WHALEY/Secretary, The Williamsport Area Community College*

CONSTRUCTION TECHNOLOGY

Air Conditioning/Refrigeration

DONALD BELLES/Service Manager, Dixon Air Conditioning and Refrigeration Corporation
CHARLES A. DINSMORE/Manager, Refrigeration and Store Service, Weis Markets, Inc.
GLENN GOODFELLOW/Manager, Service Training Center, William Bynum Education Center
ROBERT F. GUNNS/Energy Management Consultant, Pennsylvania Power and Light Company
JOHN LEIPHART/Training Director, Electronics and Service Areas, York Division of Borg Warner
JERRY MILLER/Dixon Air Conditioning and Refrigeration Corporation
THOMAS A. QUEITZSCH/Engineered Machinery, York Division, Borg-Warner Corporation
MARTIN SNYDER/Service Manager and Training Coordinator, Ide Air Equipment, Inc.
RICHARD SPEACHT
NORMAN F. THOMPSON/Superintendent of Maintenance, Sprout-Waldron Division, Koppers Company, Inc.

Architectural Technology

ARTHUR ANDERSON/Assistant Professor, The Pennsylvania State University
DR. JUNE BASKIN/Director of Art, Williamsport Area School District
THOMAS B. BROWN/Assistant Professor, Architectural Engineering, The Pennsylvania State University
SAM DORNSIFE/Interior Decorator
PAUL FRIES/Architect
JOHN E. HOFFMAN/Architect
DON LAIRD/Student
EARL MOWREY/Contractor*
JEFF SMITH
FRANK SULLIVAN/Director, Potter County Planning Commission
ROGER WILLIAMS/Student

Building Construction Technology/Construction Carpentry

RONALD L. CARNS/Carns Brothers, Inc.
CHARLES D. FIANTACA/CDF Home Improvements
JEFFREY FINKE/Carpenter, Lundy Construction Company
FRANCIS B. LORSON/Partner, Lorson and Lorson Building Contractors
CHARLES A. SHIPTON/President, C. A. Shipton, Inc. Building Contractors
CARL E. SNYDER/Secretary, G. C. Corporation
MAX M. THOMAS/General Superintendent, Lundy Construction Company
ROBERT WOOLCOCK/Pennsylvania Power and Light Company

Electrical Occupations

HARRY FISLER/Manager, Conservation Services, Pennsylvania Power and Light Company
GARY GABLE/Paul Gable and Sons Electric, Inc.
ALAN KAUFMAN/Plant Engineer, Shop-Vac Craftool Company
GUY KOSER/President, Koser Electric Company
DAVID KRANZ/Inspector, Middle Department Inspection Agency
MICHAEL LECCE/Owner, Lecce Electric Company
DARYL MARDEN/Jersey Shore Steel Company
ELERY NAU/Hardware and Electrical Supplier
QUENTIN NOVINGER/Pennsylvania Power and Light Company
CARL SMOLLINGER/Bethlehem Steel Corporation
ROBERT STAIB/Foreman, Sprout-Waldron Division, Koppers Company, Inc.
RANDALL WRIGHT/Wright Sign Company

Electrical Technology

VIRGIL COLAVITTI/Proctor and Gamble, Charmin Plant
CHERYL DESMOND/Honeywell, Inc.*
CHRIS HALL/Alcan Cable
JOHN HOUGH/Retired Professor, The Williamsport Area Community College
KIM KONYAR/Bethlehem Steel Corporation
ANGELO MARTINOZZI/Avco Corporation, Lycoming Division
CARLTON POLK/GTE Sylvania, Inc.
JACK SHAFFER/Avco Corporation, Lycoming Division
NORMAN THOMPSON/Sprout-Waldron Division, Koppers Company, Inc.
JOHN TYLER/GTE Sylvania, Inc.

Plumbing and Heating

ROBERT L. BERKHEIMER/Executive Director, PAPHCC
HAROLD J. CARPENTER/Business Manager, Local 810, Plumbers and Steam Fitters Union
MICHAEL CELLINE/Montour Auto Service Company
PAUL DAMASCA/Plumbing Masters
JOHN F. ENGEL/Plumbers and Steam Fitters Union
SAMUEL R. HOFF/President and Treasurer, Hoff Supply Company
RON PAJOR/Manufacturing Representative, Mechanical Products
WADE PUGH/R. A. Munder Company, Inc.

---

*Graduate of The Williamsport Area Community College

WALTER SCHWARTZ/Zone Manager, Kohler Company
MICHAEL STEINBACHER/Service Manager, Montour Auto Service
LESTER WOLFGANG/Williamsport Plumbing and Heating Company

HEALTH SCIENCES

Dental Hygiene

DR. GEORGE DURRWACHTER/Orthodontist
DR. ROBERT ECKER/Private Practice
DR. ROBERT FREDRICKSON/Private Practice
SANDRA NOLAN/District Dental Hygienist, Pennsylvania Department of Health
PAMELA PARKS/Dental Hygienist
DR. JEFFERSON PORTER/Private Practice
DAVID TULE/Dental Hygienist*
DR. MENDAL VANVALIN/Private Practice
DR. DANIEL WURSTER/Private Practice

Food and Hospitality Management/Dietetic Technician

JOAN R. ALKIRE/Registered Dietitian, The Williamsport Hospital
HARVEY BOATMAN/Owner-Manager, Rinella Produce Company
AL CLAPPS/Owner-Manager, Burger King
MICHAEL GOODERAU/Manager, Penn-Wells Hotel
BOB HAM/Country Cupboard, Inc.
SISTER VINCENT HUBER/Registered Dietitian, Divine Providence Hospital
DR. SANDRA LINCK/Chairperson, Home Economics Department, Mansfield University
CECILIA McLAUGHLIN, R.D./Food Service Director, Williamsport Area School District
LORRAINE MANLEY/Food Service Supervisor, Leader Nursing Home
DAVID MIELE/Owner, Hillside Restaurant
LEE NEWSWANGER/Unit Manager, Pizza Hut
VIOLA PFLEEGOR/Food Service Director, Methodist Home*
PEGGY STOUFFER/Home Economics Instructor, Williamsport High School
LINDA SWEELY/Proprietor, Sip and Dip Bakery
TRUDY WELSHANS/Owner-Manager, Hotel Mohawk

Practical Nursing

NANCY BERGESEN, R.N./Director of Nursing Service, Divine Providence Hospital
MARY FENTON, R.N./Administrator, Leader Nursing Home
KIM FISHER, R.N./Quality Assurance Coordinator, Department of Nursing, The Williamsport Hospital
DORIS HEIM, R.N.
JANICE HOFER, L.P.N.
GREGORY MEREDITH, R.N./Director of Nursing Service, Muncy Valley Hospital
SANDY OLSON/Interim Director of Nursing, The Williamsport Hospital
MICHALINE SWANKOSKI, R.N./Director of Nursing Service, Lock Haven Hospital

Radiologic Technology

ROBERT ALBAN/Technologist, Divine Providence Hospital
SISTER AUGUSTA/Technologist, Divine Providence Hospital
WILLIAM BANNON/Student
FRANK ELLIS/Technologist, The Williamsport Hospital
KARON KEITH/Technologist, Jersey Shore Hospital
CAROL MUTHLER/Technologist, Lock Haven Hospital
DR. HARSHAD PATEL/Radiologist, Divine Providence Hospital
THOMAS SCHNARS/Technologist, The Williamsport Hospital
DR. GORDON SHAW/Radiologist, The Williamsport Hospital
KAREN SNYDER/Technologist, Divine Providence Hospital

Surgical Technology

NANCY E. BERGESEN, R.N./Director of Nursing, Divine Providence Hospital
DR. MICHAEL BUMAGIN/Plastic Surgeon
SUSANNE CRESS, R.N., C.N.O.R./Patient Care Coordinator, Divine Providence Hospital
SISTER EMILENE/Administrator, Divine Providence Hospital
BARBARA HRINYA, R.N./The Williamsport Hospital
CHARLOTTE RATKE, C.O.R.T.,/Surgical Assistant
PATRICIA SOLLEY, R.N., C.N.O.R./Assistant Director of Nursing, Special Care Units, Divine Providence Hospital
DR. WILLIAM TODHUNTER/Thoracic and General Surgeon
KATHY WERTZ, R.N./Surgical Assistant
MARY LOUISE WOLFE, R.N./Director of Operating Room, The Williamsport Hospital

INDUSTRIAL TECHNOLOGY

Civil Technology

ARLEEN BUTTON/Student
ROBERT W. FERRELL, JR./Civil Engineer
CLIFTON A. FRY, JR./U.S. Geological Survey
DR. JAI KIM/Bucknell University
RICHARD SLATTERY/Student
ROBERT H. SMITH/Retired Instructor
PAUL SOLOMON/Soils Engineer, Pennsylvania Department of Transportation
DONALD WILBUR/Chief Photogrammetry and Surveys, Pennsylvania Department of Transportation

Drafting Technologies

MICHAEL BECKMAN/Alcan Cable Company
RAYMOND BOWER/Young Industries
MICHAEL CERVINSKY/Lycoming Division, Avco Corporation
JAY DAWES/Chief Draftsman, Anchor Darling Valve Company
CLINTON HALL/Sprout-Waldron Division, Koppers Company, Inc.
STEVE JONES/Supervisor of Drafting, Cable Services
SAM MILLER/Kennedy Van Saun
RANDY ROOK/Structures Department, Conrail

Machine Tool Technology/Machinist General

JERRY BURKE/GTE Sylvania
JOSEPH GEHRET/Norcen Industries
TOM LONG/Berg Electronics
RAYMOND MARSHALEK/Fairfield Manufacturing
RAY MATTIE/M and S Conversion
GLENN MILLER/Lemco Corporation
CHUCK RATH/Spong and Company
STERLING SLUSSER/American Home Foods
KEN SMITH/Sprout-Waldron Division, Koppers Company, Inc.
DONALD STOUT/Keystone Friction Hinge

Welding

FRANK BARTOLOMEO/Superintendent, E. Keeler Company
MERRILL BLOOM
JAMES CARPENTER/Local 810, Plumbers and Steam Fitters Union
GARY DARRIN/United Chemco Company
ROBERT EFFEN/Ferno Ille Division, Ferno-Washington, Inc.
LIONEL FORTIER/Welding Engineer, Anchor Darling Valve
JACK LESSIG/Williamsport Fabricators
WILLIAM McCLEAN/Grumman Allied, Inc.
ROBERT SHANDRY/Williamsport Fabricators
EMERSON SWINEHART/Piper Aircraft
WILLIAM YOST/A.C. and F. Industries

INTEGRATED STUDIES

Advertising Art/Technical Illustration

MAX AMEIGH/Educator, Craftsman, Artist
DAVID BOWEN/Photographic Illustrator, Becker and Bowen Associates
ROBERT CRAIN/Art Director, C.A. Reed Division of Westvaco
CLAY McAFOOSE/Student
VIRGINIA ULMER/Commercial Artist, BroDart, Inc.*

*Graduate of The Williamsport Area Community College

Broadcasting

IRVING BERNDT/Retired Broadcasting Instructor, The Williamsport Area Community College
GEORGE GILBERT/General Manager, WRAK-WKSB, Williamsport
LONNIE HILL/Announcer, WRAK-WKSB, Williamsport
VANESSA HUNTER/News Director, WLYC-WILQ, Williamsport
WENDY KEEFER/News Announcer, WRAK-WKSB, Williamsport
WILLIAM KEEN/Sports Director, WLYC-WILQ, Williamsport*
W. WILLIAM OTT/Manager, WWPA, Williamsport
CAREY SIMPSON/Manager, WTRN, Tyrone
LARRY SOUDER/Manager, WPGM, Danville

Electronics Technology

JAMES HAMILTON/IBM
DONALD HILL/Divine Providence Hospital
KURT HUNTER/GTE Sylvania, Inc.
FREDRICK R. KENDIG/P.E., Consumer Products Division, GTE Products Corporation
JACK MROCK/GTE Sylvania, Inc.
RICHARD PASCO/Litton Industries
EDWARD VIBERT/GTE Sylvania, Inc.
KATHY WEHR/Circuit Products Division, GTE Products Corporation

Graphic Arts/Printing

NICHOLAS DEMKO/Prep Department, Reed Hann Litho
DICKSON DYER/Salesman, Penn Graphics Supply Company Inc.
JAMES MILLER/Manager, Printing Department, Piper Aircraft
JAMES MUCHLER/Bucknell University
WENDY REIDER/Student
JANET ROBINSON/Sun Area Vocational-Technical School
JAMES WITHER/Department Chairman, Williamsport Area School District

Human Service

MICHAEL J. BRENNAN/Rehabilitation Manager, Office of Vocational Rehabilitation
DR. ROBERT CONROY/Hope Enterprises, Inc.
D. FRANCIS CORIA, N.H.A./Administrator, Broad Acres Nursing Home Association
JOHN ENGLE/Pennsylvania Board of Probation and Parole
PATRICIA ESSIP/Assistant Director, Lycoming/Clinton Bi-County Office of the Aging
PAUL D. GROSS/Tioga County Board of Assistance
LAURA KITTLE/Wise Options for Women
JOHN T. KONIECZNY/Executive Director, West Branch Drug and Alcohol Abuse Commission
TIM MAHONEY/Lycoming County Prison Work Release Center
DR. LARUE MONTANYE/Lycoming/Clinton Counties Mental Health/Retardation Program
KAREN POLT/Endless Mountains Treatment Center
NICK TELINCHO/Lycoming County Department of Children and Youth

Journalism

JANE BOWER/Administrative Assistant, Sun Home Health Services
MAX L. COLEGROVE/Owner/Publisher, *Penny Saver,* Wellsboro, and *Advertiser,* Mansfield
ALVIN N. ELMER/National News Editor, *Grit,* Williamsport
REBECCA F. GROSS/Editor Emeritus, *The Express,* Lock Haven
LINDA L. SPRINGMAN/Public Information Specialist, The Williamsport Hospital
CLIFFORD A. THOMAS/Editor, *Sun-Gazette,* Williamsport
DALE WAGNER/Owner, Phoenix Graphix

Mathematical Computer Science

MICHAEL BRADY/Lock Haven University
HAROLD FREY/Bloomsburg University
DR. DAVID HALEY/Lycoming College
ROBERT HICKEY/Wellsboro High School
HAROLD SCHWARTZ/Mansfield University
GAIL SHAW/Bucknell University

*Graduate of The Williamsport Area Community College

NATURAL RESOURCES MANAGEMENT

Agribusiness/Dairy Herd Management

LARRY CORSON/Soil Conservation Service
TED DOEBLER/Doeblers of Pennsylvania Hybrids, Inc.
THOMAS DUM, JR./Consultant, Holstein Association
LLOYD EBERSOLE/Assistant Manager, Sire Power, Inc.
SAMUEL R. FRY/Farm Operator
JAMES GOTTSCHALL/Manager, Agway
RICHARD GROVE
PATRICIA HALLOWELL/Farm Operator
THOMAS B. HARDING, JR./President, Progressive Agri-Systems, Inc.
DAVID JARRETT/Dairy Farmer
MARLIN H. McCLELLAN/Regional Director, Pennsylvania Department of Agriculture
WILLIAM MESSERSMITH/Lycoming County Cooperative Extension Office
ROBERT REICH/General Manager, Farm Credit Service
GEORGE ROBINSON/Owner-Operator, Feed Store
JOSEPH SICK/Retired Division Director, The Williamsport Area Community College
DR. GLENN STEVENS/Retired Professor
DAVID THOMPSON/Manager, Agway
FRANK WHITE/Farm Operator
THELMA WHITE/Farm Operator
DAVID WILLIAMS/Thomas L. Dunlap Farm Equipment
WILLIAM WILLIAMS/Vice President, Jersey Shore State Bank
JOHN YORK/York and Associates

Forest Technology

RAY AZZATO/Regional Park Superintendent, Bureau of Parks
DONALD BENSON/Representative, Cotton Hanlin
WILLIAM W. BROOKS III/Pulpwood Producer
ROY W. CUMMINGS, JR./Vice President, Cummings Lumber Company
ROBERT DAVEY/District Forester, Bureau of Forestry
JACK M. GILES/Game Management, Pennsylvania Game Commission
ROBERT HERZ/Eastern Wood Products
GORDON HILLER/Field Representative, Department of Environmental Resources
KEITH HORN
DAVID M. HUNTER, JR./Georgia Pacific
FRANCIS X. KENNEDY/District Forester, Bureau of Forestry
LEONARD KUHNS/Kuhns Brothers Lumber Company
PAUL E. LANDON/Timber Acquisition Manager, Proctor and Gamble Paper Products
PATRICK M. LANTZ/Pennsylvania Bureau of Forestry
DWIGHT LEWIS/Lewis Lumber Company, Inc.
MELVIN LEWIS/Lewis Lumber Company, Inc.
PHILLIP McCARTHY/Manager, Wood Procurement, Proctor and Gamble Paper Products
WILLIAM McFARLAND/Keystone Central Counselor, Lock Haven High School
FRANCIS MITSTIFER/Mitstifer Brothers Sawmill
BROOKS REESE/Vice President, Reese Lumber Company
RICHARD C. RODENBACH/Area Manager, Wood Procurement, Proctor and Gamble Paper Products Company
CARL SCHLAPPI/Principal, Williamsport Area High School
GARY STACKHOUSE/Williamsport Area High School
A. E. STAMER/Wood Procurement, Masonite Corporation
PAUL SWARTZ/Director, Bureau of Soil and Water Conservation, Department of Environmental Resources
EDWARD SWISHER/Wood Procurement Manager, Hammermill Paper Company
MICHAEL THOMPSON/Hughesville Senior High School
R. R. THORPE/Director, Bureau of Forestry
RAY WHEELAND/Wheeland Sawmill
MICHAEL YEAGLE/Timber Harvesting
BRUCE ZINCK/Vice President/General Manager, Reese Lumber Company

Horticulture

MARLIN E. ARBEGAST/Phyl Mar Associates
SCOTT BAYLOR/Country Cupboard, Inc. Garden Center
DENNIS BURD/Owner, Country Market Landscape Garden Center
DIANA CIZEK/House of Flowers
NEIL DUNKLE/D.A.D.'s Lawn & Garden Center
ROBERT ESHLEMAN, JR./Owner, Eshleman's Nursery
GARY FEEREE/White Deer Golf Course
CHRISTINE FINK
HELEN FRENCH/Enchanted Florist
EDMUND GOLOMB, JR./Owner-Manager, Andres Florist
ROSEMARY HOLMES/Nevill's Flowers
WILLIAM HOLMES/Nevill's Flowers
BRIAN KALUZNY/White Deer Golf Course
DANIEL LICHTENWALNER/Daniel's Landscaping
KATY Z. MILLER/Sales Manager, Plant Kingdom, Division of J. L. Dillon, Inc.
DAN MITCHELL/Little Kanawha Nursery
MARILYN L. MURPHY/Owner, House of Flowers
BARRY L. PLOWMAN/Shiloh Nurseries, Inc.
BILL C. SLATER/Binghamton Slater Company, Inc.
MIKE STEBBINS/Shiloh Nurseries, Inc.
CATHY VOGEL/Unique Garden Center
ARNOLD B. WAGNER/Executive Secretary, Pennsylvania Flower Growers
ALLEN R. WALTER/Owner-Operator, Whispering Pines Greenhouse
WALLY WENTZ/Owner, Wally Wentz Florist
DONALD WERT/Wert Landscape Design

Outdoor Power Equipment

KEN BERGREN/Ken Bergren, Inc.
JOHN BUTTORFF/Buttorff's Hardware
KEITH BUTTORFF/Buttorff's Hardware
ALLAN DUNKLEBERGER/Hunter and Lomison, Inc.
ROBERT FOLMAR/Folmar's Mower Service
CHARLES GOTTSCHALL/G and R Garage
RICHARD GROVE/Clark's Farm Supply
JAMES KELLEY/Hunter and Lomison, Inc.
BOB LOGUE/Bob Logue's Motorcycle Sports
RICHARD ROBERTS/Representative, Philadelphia Toro Company
CRAIG SWEITZER/Outdoor Hobby Center
DAN THOMPSON/Thompson's Garage
CARL WALIZER/Dotterer and Kolesar Equipment, Inc.
WILLIAM YODOCH/Country Cycle Shop

Service and Operation of Heavy Construction Equipment

WAYNE ALEXANDER/Manager, Lycoming County Solid Waste Department
LEO ASHCRAFT/Personnel Training Manager, Highway Equipment Company
WILLIAM BASHISTA/President, Straight Line Construction Company, Inc.
JOHN BRAUN/Lycoming Silica Sand Company
T. J. CROTTY/President, Susquehanna Supply Company
JERRY D. DAVIS/Sales Representative, Stewart-Amos Equipment Company
ROBERT DIETZ/Personnel Director, L. B. Smith, Inc.
RUSSELL FAIRCHILD/Fairchild Brothers
BRIAN HANSEN/S. C. Hansen, Inc.
BOB HOFFMAN/Sales Representative, Ingersoll-Rand Equipment Corporation
RICHARD HOOSE/Service Manager, Cleveland Brothers, Inc.
J. MICHAEL MURPHY/Cleveland Brothers, Inc.
ERIC PARKER
JAMES ROCKEY/Retired, Bureau of Forestry
EVAN ROSSER III
SHANNON K. ROSSER*
MARK SMITH/Claveland Brothers, Inc.
WILLIAM E. WAGNER/Construction Service Engineer, P.E., Pennsylvania Department of Transportation
ALDEN WALSH/G. H. and F. C. Wagaman
ROBERT WEBB/Salas Representative, Highway Equipment Company
A. ALLEN WOLESLAGLE/Manager, Forklifts, Inc.
FRANK WOLYNIEC, JR./Manager, Allenwood Equipment
JAMES WOLYNIEC/Vice President, Frank Wolyniec and Sons Construction

Wood Products Technology

DONALD BENSON/Cotton Hanlin
MAX BINGAMAN/President, Bingaman and Sons
HARRY BRESSLER/Division Manager, Burke-Parson-Bowlby Corporation
RON CALIFORNIA/Mann and Parker Lumber Company
ROY W. CUMMINGS, JR./Vice President, Cummings Lumber Company
WILLIAM DEAN/Vice President, Donald Dean and Sons
JOHN R. DREVCO/Drevco Products, Inc.
RONALD GALE/Wood Utilization Advisor, Department of Environmental Resources, Bureau of Forestry
ROBERT HERZ/Eastern Wood Products
DAVID HUNTER, JR./Georgia Pacific
FRANCIS X. KENNEDY/District Forester, Bureau of Forestry
DALE KEPNER/Plant Manager, Rishel Furniture Company
LEONARD KUHNS/Kuhns Brothers Lumber Company
MARC LEWIS/Lewis Lumber Company
MELVIN LEWIS/Lewis Lumber Company
JOHN MALLERY/Mallery Lumber Company
JAY McCALL/Plant Manager, McCallco
BROOKS REESE/Reese Lumber Company
RICHARD C. RODENBACH/Area Manager, Wood Procurement, Proctor and Gamble Paper Products Company
GERALD SCHANBACHER/Owner, Mansfield Novelty Company
A. E. STAMER/Wood Procurement, Masonite Corporation
BRUCE ZINCK/Reese Lumber Company

TRANSPORTATION TECHNOLOGY

Auto Body

RON BUDMAN/Owner, Budman's
DARYL FISHER/Claims Adjuster, Prudential Property and Casualty Insurance Company
MARK MOFFETT/Mark's Body and Frame Shop
DANIEL PLANKENHORN/Owner-Operator, Allied Auto
EDWON STROBLE, JR./Owner-Operator, Stroble's Garage
BILL STUGART/Blaise Alexander Chevrolet
STEVEN WHIPPLE/Owner-Operator, Whipple's Auto Body

Automotive Mechanics/Automotive Technology

CECIL CALVERT/Shop Foreman, Bill Fry Ford
GERALD ESHBACH/Service Manager, Larry Herron, Inc.
GARRY L. FOLTZ/Service Manager, Carnes Ford
VIRGIL FOWLER/Owner, Fowler Motors
DONALD KING/Owner/Operator, K and W Transmissions
GLENN KLINE
THOMAS KOONTZ/Mechanic, Van Campen Motors
DAVID SHIRN/Owner, Shirns-Pontiac GMC
LARRY STROUSE/Sun Electronics
GENE YORKS/Service Manager, Van Campen Motors

Aviation Maintenance Technician/Aviation Technology

ROBERT BARRETT/Foreman, Avco Service Center, Lycoming Division
KARL CRIST/Mechanic, Avco Service Center, Lycoming Division
RICHARD FREEBURN/Chief Maintenance Inspector, Federal Aviation Administration
ROBERT GIFT/Co-Owner, Lock Haven Airmotive Company
WILLIAM LEUTHOLD/Technical Writer, Piper Aircraft
CLYDE SMITH, JR./Service Inspector, Piper Aircraft
WILLIAM YAGGI/Service Technician, Cessna Aircraft

Diesel Mechanics

MICHAEL DECKMAN/Instructor, Susquehanna Nuclear Training Group
REX FORNATARO/Advanced Diesel Specialist, Inc.
JOHN GINGRICH/Branch Manager, Penske Detroit Diesel Allison
STANLEY KABATA/Shop Foreman, Pennsylvania Power and Light Company
C. D. KELLER/Co-Owner/Operator, Keller and Schell
JOHN KELLY/Owner/Operator, Hunter and Lomison, Inc.
WILLIAM C. MOORE/Maintenance Manager, Carolina Freight
ROBERT RUSSELL/Owner, Russell's Road Service
JIM TANNER/Shop Foreman, Day Equipment Company
WILLIAM THOMKE/General Manager, Nau and Thompson
B. A. WALKER/Vice President, Maintanance, Halls Motor Transit

*Graduate of The Williamsport Area Community College

STAFF

OFFICE OF THE PRESIDENT

ROBERT L. BREUDER/President; B.A., M.S., State University of New York at Albany; Ph.D., The Florida State University

ROBERT G. BOWERS/Executive Assistant for Internal Affairs (Professor); B.S., Juniata College; M.S., University of Delaware; Ph.D., The Pennsylvania State University

FREDERICK T. GILMOUR III/Executive Director, The Williamsport Area Community College Foundation; A.A., The Williamsport Area Community College; B.S.Ed., Mansfield State College

RODNEY G. HURLEY/Dean, Educational Research, Planning and Evaluation; B.A., M.S., The Florida State University

NORA M. MARTZ/Administrative Assistant to the President

INTERNATIONAL FACULTY

DR. PAUL CHAO/Professor of International Relations (Orient)

DR. WERNER KUBSCH/Professor of International Relations (Europe)

ACADEMIC AFFAIRS

RUSSELL C. MAUCH/Dean of Academic Affairs; B.A., Muhlenberg College; M.A., Ph.D., University of Massachusetts, Amherst

JOHN F. THOMPSON/Associate Academic Dean; B.S., Delaware Valley College; M.S., University of Scranton

Academic Divisions and Programs

BRENDA G. ABPLANALP, R.N./Assistant Coordinator of Practical Nursing; B.S.N., University of Rochester

CATHRYN L. ADDY/Director of North Campus; B.A., Kansas State University; M.A., State University of New York, Oswego; Ph.D., The University of Texas

GEORGE L. BAKER/Director of Industrial Technology Division; B.S., California State College; M.Ed., The Pennsylvania State University; Ed.D., University of Northern Colorado

DONALD B. BERGERSTOCK/Director of Business and Computer Technologies Division (Professor); B.S., Bloomsburg State College; M.S., Bucknell University; D.Ed., The Pennsylvania State University

WILLIAM C. BRADSHAW/Director of Experiential Learning (Assistant Professor); B.S., M.S., Mansfield State College

JAMES A. BRYAN/Counselor, Act 101 and Developmental Studies (Associate Professor); B.S., Lycoming College; M.S., Bucknell University

BARBARA A. DANKO/Director of Lifelong Education; B.S., Mansfield State College; M.A., Indiana University of Pennsylvania

WILLIAM H. DEBOLT/Director of Transportation Technology Division; B.S., California State College; M.Ed., Shippensburg State College

FRED W. DOCHTER/Construction Coordinator, Professional Development Center; Assistant Professor, Carpentry; A.A., The Williamsport Area Community College

LINDA FALCHEK-CLARK/Coordinator of Practical Nursing; B.S., Neumann College

R. DEAN FOSTER/Director of Developmental Studies/Act 101; B.A., M.Ed., Lehigh University

VALERIE J. HAYDOCK/Coordinator of Individualized Learning Center for Typewriting; B.S., M.Ed., Bloomsburg State College

RALPH A. HORNE/Director of Construction Technology Division; B.S., M.S., University of Tennessee; Ed.D., Virginia Polytechnic Institute and State University

CAROL F. KAUFMAN/Coordinator of Campus-Based Programs; B.A., The Pennsylvania State University

DIANA L. KUHNS/Coordinator of Tutoring (Assistant Professor); B.A., The Pennsylvania State University

THOMAS LEITZEL/Assistant Director of Business and Computer Technologies Division; A.A., The Williamsport Area Community College; B.A., Lycoming College; M.S., Temple University

WILLIAM J. MARTIN/Director of Secondary Vocational Programs Division; B.A., Lycoming College; M.S., Ph.D., The Pennsylvania State University

GRANT L. MARTIN/Coordinator of Specialized Technical Education Programs; B.S., Bloomsburg State College

JAMES E. MIDDLETON/Director of Integrated Studies Division; B.A., M.A., Ed.S., University of Iowa; M.A., University of Leeds, England; D.A., University of Michigan

DAVIE JANE NESTARICK/Coordinator of Dental Hygiene; A.S., B.S., West Liberty State College; M.S., The Pennsylvania State University

ELAINE PARKER/Coordinator of Computer Science Laboratory; A.A.S., The Williamsport Area Community College

JAMES P. RICE/Director of Staff and Program Development; B.A., M.A., Ph.D., University of Texas

LARRY M. RICHARDSON/Instructional Specialist/Assistant Director, Act 101; B.A., Lafayette College; M.S., Mansfield State College

SANDRA L. ROSENBERGER/Coordinator of Community-Based Programs; B.A., Washington and Jefferson College; M.S., The Pennsylvania State University

DANIEL ROSENCRANCE/Evening School Coordinator of Computer Science Laboratory; B.A., Wilkes College

ROBERT J. SLOTHUS/Coordinator of Radiologic Technology Program (Assistant Professor); B.S., Thomas Jefferson University; M.S., The Pennsylvania State University

HARRY C. SPECHT/Coordinator of Intercollegiate Athletics (Assistant Professor); B.S., Lock Haven State College; M.S., University of Bridgeport

GLENN R. SPOERKE/Acting Director, Natural Resources Management Division; B.S., M.S., The Pennsylvania State University

MICHAEL J. STANZIONE/Secondary Vocational Educational Coordinator; B.S., Lock Haven State College

PATRICIA L. WATSON/Coordinator of Radiologic Technology Clinic Laboratory; B.S., Salem College

ADMINISTRATION

WILLIAM C. ALLEN/Dean of Administration; B.S., The Pennsylvania State University

JILL A. NOON/Administrative Assistant to the Dean of Administration; A.A.S., County College of Morris

Business Operations

DAVID A. HOYES/Director of Business Operations; B.S., University of Maryland, European Division

ELEONORE R. HOLCOMB/Bookstore Supervisor

HARRY P. TUPPER/Manager of Warehouse

RUSSELL W. UMSTEAD/Supervisor of Purchasing

JOHN VITALI/Manager of Food Services Operation; A.S., Lackawanna Junior College

Computer Operations

CARL CHRISTIANSEN/Director of Computer Services

PATRICIA M. BALDWIN/Manager, Word Processing Center

MICHAEL M. CUNNINGHAM/Programmer/Analyst; A.A.S., The Williamsport Area Community College

SARAJANE HAMMOND/Programmer/Analyst; A.A.S., The Williamsport Area Community College

DAVID KEPNER/Operations Manager; A.A.S., The Williamsport Area Community College

ALAN TYSON/Programmer/Analyst; A.A.S., The Williamsport Area Community College

WILLIAM T. WARD/Information Center Software/Device Specialist; B.Ed., Wisconsin State University, Whitewater; M.S.A., The George Washington University

ANNE E. WEILMINSTER/Information Center Support Analyst; A.A.S. (2), The Williamsport Area Community College

CHARLES H. WHITFORD/Chief Operator/Maintenance Programmer; Certificate, Williamsport Technical Institute

Financial Operations

WAYNE E. KINLEY, C.P.A./Controller; B.A., Lycoming College

JAMES C. McMAHON/Assistant Controller; B.A., Lycoming College

MICHAEL L. McCARTY, C.P.A./Fixed Asset Accountant; B.S., Indiana University of Pennsylvania

ANDREA SKROBACS/Bursar

Student Records

KATHRYN M. MARCELLO/Registrar/Director of Institutional Research; B.A., Lycoming College

CONNIE R. KELSEY/Assistant Registrar

DEVELOPMENT

GRANT M. BERRY, JR./Dean of Development; B.A., Lycoming College; M.Ed., The Pennsylvania State University; Ph.D., The University of Connecticut

PAUL J. PETCAVAGE/Resource Development Specialist; B.A., Mansfield State College; M.P.A., The Pennsylvania State University

EDUCATIONAL SERVICES

CHARLES J. CUNNING/Associate Dean of Educational Services; B.S., Ohio State University; M.A., The University of Montana; Ph.D., The University of Iowa

Admissions and College Activities

CHESTER D. SCHUMAN/Director of Admissions and College Activities; A.B., Susquehanna University; M.Ed., Memphis State University

DENNIS DUNKLEBERGER/Assistant Director of Admissions/Recruiter; B.A., East Stroudsburg State College

JO ANN FREMIOTTI/Coordinator of Intramural Athletics and College Activities; B.S., Boston University

MARY SINIBALDI/Admissions Recruiter; B.S., Clarion University; M.S., Central Missouri State University

Counseling, Career Development and Placement

LAWRENCE W. EMERY, JR./Director of Counseling, Career Development and Placement; B.A., The University of Maine, Orono; M.S., State University of New York, Oneonta

G. ROBERT CONVERSE/Coordinator of Career Options, Displaced Homemakers; B.A., Lycoming College, U.S. Naval Academy; M.S., Rutgers University

KATHRYN A. FERRENCE/Career Development Specialist/Special Services for the Handicapped; B.A., Lock Haven State College; M.Ed., Pennsylvania State University

THOMAS M. McNALLY/Counselor (Professor); A.B., St. Vincent College; M.Ed. (2), University of Pittsburgh

WELDON W. MICHAEL/Career Development Specialist/Counseling; B.S., East Stroudsburg State College; M.Ed., Edinboro State College

THOMAS C. SHOFF/Counselor; B.S., M.Ed., The Pennsylvania State University

Financial Aid and Student Health Services

DONALD S. SHADE/Director of Financial Aid; A.A., The Williamsport Area Community College; B.S., Bloomsburg State College

NANCY C. ELIAS/Dispensary Nurse; R.N. Philipsburg General Hospital

JANICE A. KUZID/Assistant Director of Financial Aid; A.S., The Williamsport Area Community College

EDNA F. REIFF/Financial Aid Assistant

Learning Resources Center

KATE D. HICKEY/Director, Learning Resources Center; B.A., Swarthmore College; M.S.L.S., Clarion University

MARILYN BODNAR/Cataloger/Reference Librarian; A.A.S., State University of New York, Alfred Agricultural and Technical School; B.A., Loyola College; M.L.I.S., Drexel University

STEVEN McDONALD/Media Technician; A.A.S., State University of New York, Alfred Agricultural and Technical School

ANDREW E. SPULER/Librarian (Associate Professor); B.S., Lycoming College; M.Ed., The Pennsylvania State University; M.L.S., University of Pittsburgh

A. NEALE WINNER/Coordinator of Instructional Media

EMPLOYEE AND COMMUNITY RELATIONS

MILES D. WILLIAMS/Dean of Employee and Community Relations; B.S., M.S., Ph.D., Florida State University

CHARLES A. BITTNER/Job Analyst; B.A., Mansfield State College; M.A., Indiana University of Pennsylvania

JUDITH L. DEMKO/Manager of Duplicating and Mail Services; Certificate, Williamsport Technical Institute

MARK R. JONES/Graphic Artist/Designer; B.A., M.Ed., Indiana University of Pennsylvania

BARBARA M. JOHNSON/Director of Communications; B.A., M.A., The Pennsylvania State University

LINDA M. MORRIS/Director of Personnel Services/EEO Coordinator; B.A., Good Counsel College; M.A., Ohio University

K. PARK WILLIAMS/Production Printer/Printing Lab Supervisor; A.A.S., The Williamsport Area Community College

GENERAL SERVICES

DONALD PETERSON/Dean of General Services; B.S., University of Nebraska at Omaha

HARRY I. BAILEY/Supervisor of Maintenance

ROBERT E. LINN/Supervisor of Custodial Services

JOSEPH McNERNEY/Custodial Night Shift Foreman; A.A.S., The Williamsport Area Community College; B.A., St. Francis College

LAWRENCE P. SMEAK/Supervisor of Security

JOHN L. YOST/Supervisor of Plumbing, Heating and Cooling Systems; A.A.S., State University of New York, Alfred Agricultural and Technical School

FACULTY, COUNSELORS, LIBRARIANS

JAMES I. ADAMS/Associate Professor, Tile Setting; Certification, The Pennsylvania State University

SCOTT B. APPLEMAN/Instructor, Service and Operation of Heavy Construction Equipment; Certificate, The Williamsport Area Community College

ALEX W. BAILEY/Professor, Business Administration; B.S., Indiana University of Pennsylvania, M.Ed., The Pennsylvania State University

JANET A. BARBOUR/Instructor, Health Assistant; A.A.S., Illinois Valley Community College; B.S., Towson State College

JACQUELINE BAUGHMAN/Instructor, Practical Nursing; R.N., Reading Hospital; B.S., Albright College

FRANKLIN P. BEATTY III/Associate Professor, Plumbing and Heating; B.S., Susquehanna University; M.Ed., The Pennsylvania State University

DELMONT F. BERGEY/Associate Professor, Automotive; A.A.S., The Williamsport Area Community College

PATRICK G. BERNOCCO/Instructor, Computer Science; B.S., Bloomsburg State College

SETH M. BIERLY/Instructor, Machine Shop

MARILYN BODNAR/Cataloger/Reference Librarian; A.A.S., State University of New York, Alfred Agricultural and Technical School; B.A., Loyola College; M.L.I.S., Drexel University

FRANK J. BORITZ/Instructor, Building Construction

NANCY C. BOWERS/Instructor, Mathematics; A.A.S., The Williamsport Area Community College; B.A., Lycoming College; M.S., The Pennsylvania State University

CHARLES A. BROOKE/Assistant Professor, Mathematics; A.B., Lycoming College

DARLA L. BROWN/Instructor, Dental Hygiene; A.A.S., The Williamsport Area Community College; B.S., Lock Haven University

JOSEPH H. BROWN, SR./Instructor, Automotive; A.A., The Williamsport Area Community College

JAMES A. BRYAN/Counselor, Developmental Studies and Act 101 (Associate Professor); B.S., Lycoming College; M.S., Bucknell University

WILLIAM A. BURGER/Instructor, Plumbing and Heating

LAMONT E. BUTTERS/Associate Professor, Civil Technology; Professional Engineer; B.S., The Pennsylvania State University; M.S., Purdue University

ANTHONY N. CILLO/Associate Professor, Journalism; B.A., The Pennsylvania State University

DAVID B. CLARK/Assistant Professor, Chemistry; B.A., Lycoming College; M.S. Bucknell University

NED S. COATES/Associate Professor, English; B.A., Susquehanna University; M.A., University of Arkansas

ROBERT CRISSMAN/Instructor, Building Construction

JEAN M. CUNNINGHAM, R.N./Instructor, Practical Nursing; B.S.N., Columbia University

WILLIAM E. CURRY/Instructor, Automotive; Certificate, Williamsport Technical Institute; Trade Comp., The Pennsylvania State University

ELIZABETH DAHLGREN/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

ROBERT W. DANELLEY/Assistant Professor, Electrical Occupations

ROGER E. DAVIS/Associate Professor, Mathematics; B.S., Clarion State College; M.S., Bucknell University

NATALIE O. DeLEONARDIS/Instructor, Practical Nursing, Geisinger Medical Center School of Nursing, B.S., Millersville University

DAVID C. DIETRICK/Assistant Professor, Welding; A.A.S., The Williamsport Area Community College

FRED W. DOCHTER/Assistant Professor, Carpentry; Construction Coordinator, Professional Development Center; A.A., The Williamsport Area Community College

JAMES E. DOEBLER/Instructor, Aviation; Certificate, The Williamsport Area Community College

ADELLE M. DOTZEL/Instructor, Mathematics; B.S., Kings College; M.A., The Pennsylvania State University

DANIEL J. DOYLE/Professor, Government and History; A.B., Maryknoll Seminary; M.A., Ph.D., St. John's University

SAMUEL E. DRIVER/Instructor, Diesel Mechanics

DR. PETER B. DUMANIS/Professor, English; B.A., Clark University; M.A., Adelphi University; Ph.D., Syracuse University

WILLIAM H. EALER/Assistant Professor, Architecture; R.A.; N.C.A.R.B. Registration; B.S., B. Arch., Rensselaer Polytechnic Institute

CARYLL ECK/Associate Professor, Practical Nursing; R.N., Williamsport Hospital School of Nursing; B.S., Bloomsburg State College

GERALD E. EISLEY, JR./Instructor, Computer Science; B.S. (2), Lock Haven State College

BENJAMIN H. ELDRED/Assistant Professor, Service and Operation of Heavy Construction Equipment, Certificate, The Williamsport Area Community College

JACQUELYNNE D. ELLIS/Associate Professor, Practical Nursing; R.N., Polyclinic Medical Center; B.P.S., Elizabethtown College

DAN EMICK/Instructor, Service and Operation of Heavy Construction Equipment

STEVEN A. ERBACH/Instructor, Wood Products Technology; A.A.S., The Williamsport Area Community College; B.S., University of New Hampshire

WAYNE ETTINGER/Associate Professor, Horticulture; B.S., The Pennsylvania State University

KATHRYN FERRENCE/Career Development Specialist, Special Services for the Handicapped; B.A., Lock Haven State College; M.Ed., The Pennsylvania State University

LEONARD FILIPKOWSKI/Assistant Professor, Automotive; A.A.S., The Williamsport Area Community College

DENNIS E. FINK/Instructor, Horticulture; A.A.S., The Williamsport Area Community College

DONALD FLYNN/Associate Professor, Automotive; M.Eq.

ROY FONTAINE/Instructor, Psychology; B.A., Providence College; M.S., Bucknell University

JAMES W. FOX/Instructor, Welding

JAMES GARLAND/Instructor, Aviation; A.S.T., Pittsburgh Institute of Aeronautics; B.S., Savannah State College

JAMES W. GEORGE/Assistant Professor, Agribusiness; B.S., University of Georgia

GLEN F. GETCHEN/Assistant Professor, Machine Tool Technology

ROBERT V. GLECKNER/Instructor, Horticulture; B.S., The Pennsylvania State University

PAUL W. GOLDFEDER/Assistant Professor; B.S., University of Pittsburgh

PERRY R. GOTSCHAL/Assistant Professor, Electronics; B.S., Bloomsburg State College

EDWARD M. GRAY/Associate Professor, Machine Shop; M. Eq., The Pennsylvania State University

THOMAS GRAY/Assistant Professor, Physical Education; B.S., Lock Haven State College; M.Ed., Temple University

RICHARD B. GREENLY/Assistant Professor, Business Administration; B.S., M.S., Bloomsburg State College

FRANK C. GRENOBLE/Associate Professor, Building Construction; M.Eq., The Pennsylvania State University

ANTHONY M. GURAVAGE/Assistant Professor, Electrical Occupations; A.A., The Williamsport Area Community College

ROBERT L. HAFER/Instructor, Automotive; A.A.S., The Williamsport Area Community College

RUTH HAMEETMAN/Instructor, Business Administration; B.S., M.Ed., Bloomsburg State College

JOHN HAMMOND/Associate Professor, Automotive; B.S., M.Ed., The Pennsylvania State University

WILLIAM F. HANEY/Associate Professor, Automotive; M.Eq.

ALFRED L. HAUSER/Associate Professor, Machine Tool Technology; Certificate, The Williamsport Technical Institute; B.P.S., Elizabethtown College; M.Eq., The Pennsylvania State University

PAUL HEIM/Associate Professor, Carpentry; A.A.S., The Williamsport Area Community College; B.S., The Pennsylvania State University

PHILIP H. HENNING/Assistant Professor, Electrical; A.A.S., The Williamsport Area Community College; B.A., The Pennsylvania State University; M.A., San Francisco State University

CARL HILLYARD/Instructor, Carpentry

WILLIAM A. HOLMES/Instructor, Machine Shop; A.A.S., The Williamsport Area Community College; M.Eq., The Pennsylvania State University

DAVID C. JOHNSON/Instructor, Electronics; B.S.E.T., Moody Bible Institute

RAE ANN KARICHNER/Assistant Professor, Dental Hygiene; Certificate, Temple University; B.S., Bloomsburg State College; M.S., Marywood College

LYLE W. KEELER/Instructor, Electrical Occupations; A.A.S., The Williamsport Area Community College

G. ROBERT KISSELL/Professor, History and Government; B.S., Lock Haven State College; M.S.Ed., Bucknell University

FRANCIS KITCHEN, SR./Assistant Professor, Machine Shop

GLENN KLINE/Assistant Professor, Automotive; B.S., The Pennsylvania State University

GARY KNEBEL/Instructor, Computer Science; B.A., Columbia College; B.S., Columbia School of Engineering; M.S., Massachusetts Institute of Technology

WILLIAM A. KRANZ/Instructor, Plumbing and Heating

MARY ANN R. LAMPMAN/Instructor, Reading; B.S., College Misericordia

PHILLIP D. LANDERS/Associate Professor, Business Administration; B.S., Bloomsburg State College; M.B.A., Michigan State University

JAMES W. LITTLE/Assistant Professor, Aviation

J. THOMAS LIVINGSTONE/Assistant Professor, Machine Tool Technology; B.A., Manchester College; M.A., Ball State University

JAMES E. LOGUE/Associate Professor, English; B.A., M.A., Bucknell University

DAVID A. LOTT/Instructor, Computer Science; A.A.S., (2) The Williamsport Area Community College

ROBERT L. LYONS/Assistant Professor, Retail Management; B.S., The Pennsylvania State University

JOHN J. MACKO, JR./Instructor, Auto Body Repair; Certificate, The Williamsport Area Community College

JOSEPH G. MARK/Associate Professor, Architectural Drafting; R.A.; B. Arch., The Pennsylvania State University

JOSEPH P. MARTIN/Instructor, Plumbing and Heating

MARGARET McKEEHEN/Professor, Practical Nursing; B.S., Bloomsburg State College; M.Ed., The Pennsylvania State University

THOMAS M. McNALLY/Counselor (Professor); A.B., St. Vincent College; M.Ed. (2), University of Pittsburgh

REBECCA A. MEISER/Instructor, Mathematics; B.S., Shippensburg State College; M.A., Bucknell University

LOUIS MENAGO/Assistant Professor, Machine Tool Technology; B.S., The Pennsylvania State University

MICHAEL G. MERTZ/Instructor, Welding

DALE A. METZKER/Associate Professor, Graphic Arts; A.A., The Williamsport Area Community College

VICTOR A. MICHAEL/Associate Professor, Electronics Technology; B.S., Bloomsburg State College

WELDON W. MICHAEL/Career Development Specialist; B.S., East Stroudsburg State College; M.Ed., Edinboro State College

ANN R. MIGLIO/Associate Professor, Food Service and Hospitality; B.S., University of Wisconsin, Stout Campus

JOSEPH P. MIGLIO/Associate Professor, Machine Shop; B.S., University of Wisconsin, Stout Campus; M.A., University of Minnesota

DONNA R. MILLER/Associate Professor, Physical Education; B.S., Lock Haven State College; M.Ed., The Pennsylvania State University

LYMAN I. MILROY/Associate Professor, Mathematics; B.A., Susquehanna University; M.S., Bucknell University

JACK MIRTO/Assistant Professor, Auto Body

ROBERT S. MIX, JR./Instructor, Electrical Occupations

DAVID MONTGOMERY/Instructor, Welding

VIVIAN MOON/Associate Professor, Food Service and Hospitality; R.D.; B.S., M.Ed., The Pennsylvania State University

GLADYS L. MORRIS/Instructor, English; B.S., Lock Haven State College

JACK D. MURPHY/Instructor, Mathematics; B.S., M.S., Drexel University

JOSEPH B. MURPHY/Assistant Professor, Carpentry; Certificate, A.A.S., The Williamsport Area Community College; B.S., State University of New York, Oswego

PATRICK D. MURPHY/Assistant Professor, Advertising Art; A.S., Luzerne County Community College; B.A., Kings College

VERONICA M. MUZIC/Professor, English; A.B., College Misericordia; M.A., Bucknell University

MICHAEL P. NESTARICK/Associate Professor, Mathematics; B.S., Bloomsburg State College; M.S., Bucknell University

HAROLD L. NEWTON/Instructor, Graphic Arts

DONALD NIBERT/Assistant Professor, Forestry; B.S., M.S., West Virginia University

RUTH N. NICE/Instructor, Practical Nursing; Diploma, Nesbitt Memorial Hospital; B.S., Wilkes College

ROBERT L. NORTON/Instructor, Aviation; Certificate, Williamsport Technical Institute; A.A.S., The Williamsport Area Community College

EARL L. PARRISH/Associate Professor, Machine Shop

ELWOOD PAULING/Instructor, Machine Shop; A.A.S., The Williamsport Area Community College

RODMAN H. PERRY/Instructor, Automotive

LENORE PENFIELD/Instructor, Dental Hygiene; A.S., Montgomery County Community College

RAMON H. PICKERING/Instructor, Automotive

JAMES C. PIVIROTTO/Associate Professor, Forest Technology; B.S., The Pennsylvania State University

FRANK L. PORTER/Associate Professor, English; B.A., University of Florida; M.A., Bucknell University

JAMES A. POTTER II/Instructor, Carpentry

DONALD O. PRASTER/Assistant Professor, Welding; B.S., The Pennsylvania State University

CHRIS RADKE/Professor, Drafting; C.E.T., A.A.S., The Williamsport Area Community College; B.S., State University of New York, Oswego; M.Ed., The Pennsylvania State University

FREDERICK J. RANKINEN/Professor, Civil Technology; R.S.; B.S., Ohio State University; M.Eng., The Pennsylvania State University

RICHARD W. RANKINEN/Associate Professor, Forest Technology; B.S., University of Idaho

DENNIS H. RICE/Instructor, Small Engine Repair

DENNIS F. RINGLING/Associate Professor, Forest Technology; B.S. (2), M.Ed., The Pennsylvania State University

EDWARD L. ROADARMEL/Instructor, Drafting; B.S., The Pennsylvania State University

RONALD L. ROCK/Professor, Accounting; B.S., Shippensburg State College; M.Ed., The Pennsylvania State University

WILLIAM G. RUMMINGS/Instructor, Masonry; A.A.S., The Williamsport Area Community College

RICHARD SAHN/Instructor, Sociology, Psychology; B.A., Bard College; M.A., Duquesne University

FRED C. SCHAEFER, JR./Assistant Professor, Graphic Arts; A.S., The Williamsport Area Community College

JANE L. SCHEFFEY/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

PAUL S. SCHRINER/Associate Professor, Welding; A.A.S., The Williamsport Area Community College

CHRISTINE M. SCHWARTZ/Instructor, Practical Nursing, B.A., Mansfield State College; B.S.N., The Catholic University of America

FREDERICK SHARAR/Assistant Professor, Foreign Languages; A.B., Lycoming College; Zeugnis, Baden-Wurttemberg, Universitat Heidelberg, Germany

JAMES B. SHAW, JR./Assistant Professor, Physics; B.S., Lafayette College; M.S., Old Dominion University

PATRICIA J. SHOFF/Associate Professor, Business Administration; B.S., M.Ed., Indiana University of Pennsylvania

THOMAS C. SHOFF/Counselor; B.S., M.Ed., The Pennsylvania State University

DOREEN W. SHOPE/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

LEROY G. SIMPSON/Assistant Professor, Physics; B.S., Lycoming College

BRUCE M. SMITH/Instructor, Electronics; Certificate, United Electronics Institute

WAYNE A. SMITH/Assistant Professor, Auto Body Repair; A.A.S., The Williamsport Area Community College; B.S., Southern Colorado State College

ROBERT G. SNAUFFER/Instructor, Electrical Occupations and Technology

HARRY C. SPECHT/Assistant Professor, Physical Education; Coordinator of Intercollegiate Athletics; B.S., Lock Haven State College; M.S., University of Bridgeport

ELIZABETH M. SPRINGMAN/Instructor, Surgical Technology

ANDREW E. SPULER/Librarian (Assistant Professor); B.S., Lycoming College; M.Ed., The Pennsylvania State University; M.L.S., University of Pittsburgh

LAWRENCE P. STABLER, SR./Assistant Professor, Automotive

WILLIAM L. STEVENS/Assistant Professor, Service and Operation of Heavy Construction Equipment; B.S., University of Nebraska; M.Ed., Colorado State University

DALE R. STRAUB/Professor, Drafting Technology; A.S., The Williamsport Area Community College; B.S., M.Ed., The Pennsylvania State University

ROBERT W. STULL/Assistant Professor, Electrical Technology; A.A.S., The Williamsport Area Community College; B.E.T., Rochester Institute of Technology

RICHARD M. SWEENEY/Professor, English; B.A., Wabash College; M.A., Ph.D., Brown University

SUSAN W. SWEET/Instructor, Practical Nursing; B.S.Ed., Mansfield State College

GEORGE W. TANNER/Instructor, Diesel Mechanics; Certificate, The Williamsport Area Community College

BONNIE R. TAYLOR/Associate Professor, Business Administration; B.S.Ed., M.Ed., Bloomsburg State College

MARY E. TEMPLE/Instructor, Practical Nursing; R.N., Williamsport Hospital School of Nursing

DAMON THOMPSON/Professor, English; B.F.A., Ohio State University; M.F.A., University of Iowa

H. LARUE THOMPSON/Instructor, Electrical Occupations

MARGARET A. THOMPSON/Associate Professor, Computer Science; B.S., Indiana University of Pennsylvania; M.Ed., University of Pittsburgh

RONALD THOMPSON/Professor, Biology; B.S., Lycoming College; M.S., Kansas State College

RAY F. TYLER/Associate Professor, Business Administration; B.S. (2), Susquehanna University; M.B.A., Bucknell University

MICHAEL TYSON/Assistant Professor, Mathematics; B.S., Juniata College; M.A., University of Illinois

RITA C. ULRICH/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

ROBERT S. ULRICH/Associate Professor, English; A.B., Lycoming College; M.Ed., Bloomsburg State College

CHALMER VAN HORN/Associate Professor, Drafting, Coordinator of Drafting; C.F.M.E., B.S., The Pennsylvania State University

ROBERT M. VAUGHN/Instructor, Welding; Certificate, A.A.S., The Williamsport Area Community College

DONALD A. WALTMAN/Assistant Professor, Electronics; B.S., Dickinson College; M.S., Franklin and Marshall

CLEON D. WATTS/Assistant Professor, Masonry

RICHARD J. WEILMINSTER/Associate Professor, Horticulture; A.A.S., State University of New York at Farmingdale; B.S.A., University of Georgia; M.S., The Pennsylvania State University

JACKIE E. WELLIVER/Instructor, Drafting; A.I.S., The Williamsport Area Community College; B.S., The Pennsylvania State University

MARY JANE WEST/Associate Professor, English and Economics; B.S., M.S., Bucknell University

WILLIAM R. WEYANT/Assistant Professor, Electrical; B.S., Indiana Institute of Technology; M.Eq., The Pennsylvania Dept of Education

THOMAS M. WINDER/Assistant Professor, Computer Science; B.S., Lycoming College; M.S., Elmira College

LINDA R. WINIARCZYK/Instructor, Broadcasting; B.A., M.M.C., University of South Carolina

HAROLD D. WINNER/Instructor, Carpentry and Building Construction

GEORGE P. WOLFE/Professor, Computer Science; B.S., Lycoming College; M.S., Clarkson College of Technology

LLOYD F. WOODLING/Associate Professor, Mathematics; B.S., Lock Haven State College; M.A., Bucknell University

M. KEITH WYNN/Assistant Professor, Electrical Occupations; Certificate, The Williamsport Area Community College

CHESTER F. YAUDES/Assistant Professor, Automotive; Vocational Certificate, The Pennsylvania State University

JAMES S. YOUNG/Instructor, Carpentry

WILLIAM P. YOUNG/Instructor, Building Construction; A.A.S., The Williamsport Area Community College

PAUL J. ZELL, JR./Instructor, Service and Operation of Heavy Construction Equipment; A.A.S., The Williamsport Area Community College

PAUL J. ZELL, SR./Instructor, Plumbing

INDEX OF COURSES

Abnormal Psychology (PSY 201) - 112
Abrasive Machining (MTT 641) - 105
Accident Prevention (ELT 113) - 97
Accounting I (ACC 112) - 82
Accounting II (ACC 122) - 82
Acetylene Welding (WEL 701) - 115
Acetylene Welding (WEL 712) - 116
Adapted P.E. Weight Training (PED 145) - 109
Advanced Assembly Language (CSC 244) - 92
Advanced Carpentry (BCT 241) - 89
Advanced Circuit Analysis (ENT 248) - 98
Advanced Detail I (EDT 241) - 96
Advanced Detail II (EDT 242) - 96
Advanced Electrical Construction (ELC 845) - 97
Advanced Electrical Theory (ELT 244) - 97
Advanced Forest Mensuration (FOR 124) 102
Advanced Motor Control (ELC 832) - 96
Advanced Plumbing Skills (PLH 712) - 111
Advanced Process Camera & Stripping (GCO 642) - 103
Advanced Quantity Foods (FHD 201) - 101
Advanced Surveying (CET 241) - 91
Advanced Systems & Codes (PLH 722) - 111
Advanced Techniques of Food Production and Services (QFP 540) - 112
Advanced Typographic Composition (GCO 641) - 103
Advertising Design (ART 242) - 83
Aerobic Dance (PED 169) - 110
Agricultural Financing (AGB 124) - 83
Agricultural Sales & Service (AGB 249) - 83
Air Conditioning/Refrigeration Electricity (ELT 531) - 98
Air Conditioning/Refrigeration Work Experience (ACR 250) - 84
Air Movement & Ventilation (ACR 241) - 84
Aircraft Assembly and Rigging/Inspection (APC 638) - 87
Aircraft Atmosphere Control and Ice/Rain Control (APC 645) - 87
Aircraft Communications, Navigation and Instruments (APC 644) - 87
Aircraft Covering, Finishes and Welding (APC 637) - 87
Aircraft Drawings (EDT 104) - 95
Aircraft Electrical (APC 636) - 87
Aircraft Landing Gear, Hydraulics, Pneumatics and Position Warning (APC 643) - 87
Aircraft Servicing/Fluidliners and Fittings (APC 516) - 86
Aircraft Sheet Metal and Wood Structure (APC 642) - 87
Alternating Current Fundamentals (ELC 722) - 96
Alternating Current Fundamentals (ELT 122) - 97
American Government - National (GOV 231) - 103
Animal Breeding and Reproduction (DHM 724) - 93
Animal Production (AGB 236) - 83
Applied Calculus (MTH 107) - 106
Applied Drafting Techniques (EDT 232) - 96
Applied Human Physiology (BIO 110) - 87
Applied Software Development (CSC 248) - 92
Archery Volleyball (PED 141) - 109
Architectural Drafting (IND 844) - 104
Architectural Graphics I (ARC 112) 84
Architectural Graphics II (ARC 122) 84
Arithmetic (MTH 001) - 94, 106
Audio in Media (BRC 114) - 88
Auditing (ACC 246) 82
Auto Body Maintenance (ABC 723) 85
Automatic Machines (MTT 521) 105
Automatic Transmission and Air Conditioning (AMT 641) - 86

Badminton/Volleyball (PED 142) - 109
Banking & Investments (MGT 237) - 89
Basic Algebra (MTH 002) - 94, 106
Basic Anatomy & Physiology (BIO 121) - 87
Basic Architectural Drafting (ARC 102) - 84
Basic Auto Body (ABC 713) - 85
Basic Botany (Horticulture) (BIO 111) - 87
Basic Drafting (IND 714) - 104
Basic Drafting I (EDT 111) - 95
Basic Drafting II (EDT 112) - 95
Basic Drawing (ART 111) - 83
Basic Electrical Construction (ELT 125) - 97
Basic Electrical Construction Lab (ELC 833) - 97
Basic Electricity (APC 513) - 86
Basic Electronics (ELT 233) - 97
Basic Electronics For Industry (ELC 834) - 97
Basic English (ENL 011) - 94, 99
Basic Motor Control (ELC 721) - 96
Basic Painting (ART 121) - 83
Basic Plumbing (PLH 711) - 110
Basic Wiring Lab (ELC 712) - 96
Basic Wiring Lab (ELT 112) - 97
Basketball/Volleyball (PED 124) - 109
Beginning German I (GER 111) - 102
Beginning German II (GER 121) - 102
Beginning Spanish I (SPA 111) - 115
Beginning Spanish II (SPA 121) - 115
Beverage Management & Catering (FHD 241) - 101
Block Construction (BCT 122) - 89
Blueprint Reading (EDT 107) - 95
Blueprints & Specifications (CNC 833) - 90
Bowling/Physical Fitness (PED 146) - 109
Brick & Stone (CNC 713) - 89
Brick Construction (BCT 232) - 89
Broadcast Announcing (BRC 233) - 88
Broadcast Management Practicum (BRC 242) - 88
Broadcast Writing (BRC 223) - 88
Building Construction Technology (BCT 242) - 89
Building Equipment I (ARC 233) - 84
Building Equipment II (ARC 242) - 85
Building Materials I (ARC 116) - 84
Building Materials II (ARC 232) - 84
Building Trades Estimating (CNC 843) - 90
Business Communications (MGT 230) - 88
Business Computer Applications (CSC 120) - 91
Business Law I (MGT 231) - 88
Business Law II (MGT 241) - 89
Business Mathematics (MGT 111) - 88
Business Psychology (MGT 235) - 88

Calculus I (MTH 238) - 107
Calculus II (MTH 248) - 107
Calibration & Standardization (ENT 241) - 98
Canoeing (PED 170) - 110
Career Exploration (CHD 101) - 94
Carpentry for the Trades (BCT 254) 89
Chassis Systems Service (AMT 640) - 86
Children's & Young Adult Literature (EDU 121) - 96
Civil Drafting (IND 834) - 104
Clerical Procedures (CLS 717) 113
Clerical Workshop (CLS 728) - 114
Clinical Dental Hygiene I (DHG 124) - 94
Clinical Dental Hygiene II (DHG 230) - 94
Clinical Dental Hygiene III (DHG 242) 94
Clinical Surgical Technology (SRT 121) 115
COBOL Programming I (CSC 128) 92
COBOL Programming II (CSC 238) 92
College Algebra & Trigonometry I (MTH 103) 106
College Algebra & Trigonometry II (MTH 104) - 106
College Reading & Study Skills (RDG 101) - 95
College Study Skills (RDG 102) - 95
Color & Design (ART 231) - 83
Commercial, Industrial Blueprints and Equipment (ELC 835) - 97
Commercial Refrigeration Systems (ACR 521) - 84
Communication Circuits & Systems (ENT 233) - 98
Communications (ENL 711) - 100
Community Dental Health (DHG 241) - 94
Computer Operations I (COP 713) - 92
Computer Operations II (COP 723) - 92
Computer Operations Internship (COP 724) - 92
Computer Systems with Assembler (CSC 230) - 92
Concrete & Block (CNC 712) - 89
Concrete Construction (BCT 243) - 89
Construction Carpentry (BCT 112) - 89
Cooperative Education I (CED 101) - 93
Cooperative Education II (CED 102) - 93
Cooperative Education III (CED 103) 93
Copyreading & Editing (JOU 232) - 105
Cost Accounting (ACC 231) - 82
Creative Writing (ENL 235) - 99
Criminology (SOC 242) - 115

Dairy Feeding and Management (DHM 713) - 93
Dairy Herd Health (DHM 714) - 93
Dairy Production (AGB 125) - 83
Data Structures (CSC 125) - 92
Data Structures (MCS 201) - 106
DC-AC Theory (ENT 111) - 98
Dendrology (FOR 111) - 101
Dental Materials (DHG 121) - 93
Dental Practice Orientation (DHG 244) - 94
Dental Radiology (DHG 126) - 94
Dental Specialties (DHG 243) - 94
Descriptive Geometry (EDT 201) - 96
Design Studio I (ARC 236) - 85
Design Studio II (ARC 246) - 85
Desserts, Sauces and Meat Preparation (QFP 521) - 112
Detail & Assembly Drawings (EDT 231) - 96
Developmental Psychology (PSY 203) 112
Die Design (TDT 242) - 115
Diet Therapy With Dietetic Seminar (FHD 122) - 101
Direct Current Fundamentals (ELC 711) - 96
Direct Current Fundamentals (ELT 111) - 97
Discrete Mathematics (MTH 237) - 107
Drive Units and Systems (OPE 711) - 108
Dynamics (EIT 203) - 99

Ecology (BIO 208) - 88
Economic Analysis (ECO 202) - 96
Educational Psychology (PSY 231) - 112
Electric Motors & Refrigeration Controls (ELT 541) - 98
Electric Welding (WEL 703) - 116
Electric Welding (WEL 722) - 116
Electrical Blueprint Reading & National Electric Code (ELT 124) - 97
Electrical & Electronic Drafting (IND 845) - 104
Electrical Machinery Analysis (ELC 848) - 97
Electrical Motor Control (ELT 234) - 97
Electrical Systems Analysis (ELT 241) - 97

Electricity For The Trades (ELT 110) 97
Electronics Laboratory I (ENT 115) 98
Electronics Laboratory II (ENT 126) 98
Electronics Laboratory III (ENT 237) 98
Electronics Laboratory IV (ENT 247) 98
Elementary Statistics I (MTH 201) 107
Elementary Statistics II (MTH 202) 107
Engine & Electrical Overhaul (AMT 642) 86
Engine Cooling and Lubrication (APC 633) 87
Engine Electrical (APC 635) 87
Engine Fire Protection and Instruments (APC 634) 87
Engine Fuel Systems (APC 524) 86
Engine Ignition Systems (APC 522) 86
Engine Induction and Exhaust Systems (APC 523) 86
Engine System Service (AMT 631) 86
Engineering Chemistry (EIT 207) 99
Engineering Drafting (EDT 102) 95
Engineering Drawing (CET 112) 90
Engineering Economics (EIT 206) 99
Engineering Electronics (EIT 210) 99
Engineering Physics (EIT 209) 99
English Composition I (ENL 111) 99
English Composition II (ENL 121) 99
Environmental Science (ESC 100) 100
Equipment & Layouts (FHD 245) 101
Equipment & Machinery (FOR 233) 102
Equipment & Machinery (WPT 244) 116
Estimating & Blueprints (BCT 121) 89
Ethics & Political Philosophy (PHL 121) 108
Exterior Finish (CNC 722) 89

Farm Management (AGB 248) 83
Farm Records, Analysis and Computers (DHM 723) 93
Fashion Merchandising & Display (MKT 245) 113
Feature Writing (JOU 231) 105
Federal Air Regulations, Records, and Publications (APC 514) 86
Field & Forage Crop Production (AGB 123) 83
Field Experience In Management Systems I (FHD 113) 101
Field Experience In Management Systems II (FHD 123) 101
Field Experience In Management Systems IV (FHD 231) 101
Field Experience In Management Systems V (FHD 242) 101
Field Work & Advanced Skills (PLH 842) 111
File and Database Processing (CSC 240) 92
Film Assembly & Imposition (GCO 522) 103
Film Assembly & Imposition (GCO 526) 103
Finance (MGT 125) 88
Financing Dairy Enterprises (DHM 721) 93
Fixture Design (TDT 232) 115
Floral Design I (FLR 122) 100
Floral Design II (FLR 233) 100
Flower Shop Operation (FLR 244) 100
Fluid Mechanics (CET 242) 91
Fluid Mechanics (EIT 204) 99
Football/Volleyball/Basketball (PED 123) 109
Forage Production (DHM 712) 93
Forest Botany (FOR 115) 102
Forest Ecology & Wildlife Management (FOR 126) 102
Forest Land Management & Recreation (FOR 247) 102
Forest Mensuration (FOR 113) 102
Forest Products (FOR 242) 102
Forest Protection (FOR 248) 102
Forest Surveying II (FOR 232) 102
FORTRAN with Plotting (CSC 239) 92
Foundations of Nursing (NUR 710) 111
Four Cycle Diesel Engines (DMC 523) 95
Framing and Sheathing (CNC 721) 89
Front Office Management & Housekeeping (FHD 126) 101
Fuel Injection Systems I (DMC 533) 95
Fuel Injection Systems II (DMC 534) 95
Fundamentals of Chemistry (CHM 100) 90
Fundamentals of Computer Science (CSC 118) 91
Fundamentals of Counseling (HSR 125) 104
Fundamentals of Speech (ENL 202) 99

Gage Design & Programming (TDT 241) 115
Gears and Cams (EDT 103) 95
Gears, Cams, and Mechanisms (IND 724) 104
General and Oral Pathology (DHG 239) 94
General Anthropology (SOC 112) 115
General Aviation Mathematics (MTH 515) 107
General Biology I (BIO 113) 87
General Biology II (BIO 123) 87
General Botany (BIO 203) 88
General Chemistry I (CHM 111) 90
General Chemistry II (CHM 121) 90
General Organic Chemistry (CHM 105) 90
General Organic Chemistry (CHM 107) 90
General Physics I (PHS 116) 110
General Physics II (PHS 126) 110
General Psychology (PSY 111) 111
Golf (PED 162) 109
Golf/Bowling (PED 107) 109
Greenhouse Crop Production I (FLR 121) 100
Greenhouse Crop Production II (FLR 232) 100
Greenhouse Crop Production III (FLR 243) 100
Gymnastics (PED 163) 109

Health Care Delivery Systems (FHD 234) 101
Heat Loss Calculations - Pipe Welding (PLH 833) 111
Heat Treatment & Cutter Grinding (MTT 642) 105
Helping Process and Crisis Intervention (HSR 121) 104
Herbaceous Plants (OHT 116) 100, 108
Highway Engineering Technology (CET 234) 91
Historical Geology (GEL 106) 102
Horticulture Mechanics (OHT 246) 100, 108
Horticulture Soils (OHT 114) 100, 108
Hospitality, Dietetic Work Experience/Management Systems III (FHD 250) 101
Hospitality Management & Theory (FHD 236) 101
Hospitality Merchandising (FHD 246) 101
Hot Water - Heat Conservation (PLH 832) 111
House & Conservatory Plants (FLR 245) 100
Human Anatomy and Physiology I (BIO 115) 87
Human Anatomy and Physiology II (BIO 125) 87
Human Service Practicum I (HSR 251) 104
Human Service Practicum II (HSR 252) 104
Human Service Seminar (HSR 260) 104

Income Tax Accounting (ACC 125) 82
Independent Study (RDG 099) 95
Industrial Metrology (MTT 522) 105
Industrial Control (ELC 849) 97
Inert Gas Welding (WEL 832) 116
Installation & Service Problems Air Conditioning (ACR 232) 84
Installation & Service Problems Commercial Refrigeration (ACR 522) 84
Instructional Swimming (PED 164) 109
Insurance (MGT 238) 89
Interior Finish (CNC 831) 90
Interior Trim (CNC 832) 90
Intermediate Accounting I (ACC 232) 82
Intermediate Accounting II (ACC 244) 82
Intermediate Algebra (MTH 105) 106
Intermediate Digital Electronics (ENT 238) 98
Intermediate Solid State Devices & Circuits (ENT 125) 98
Internal Combustion Engines (DMC 514) 95
Internship Co-op (AGB 240) 83
Introduction to Agricultural Business (AGB 111) 83
Introduction to Art (ART 233) 83
Introduction to Computers with FORTRAN (CSC 103) 91
Introduction to Dental Hygiene (DHG 100) 93
Introduction to Diesel Mechanics (DMC 513) 95
Introduction to Digital Electronics (ENT 127) 98
Introduction to Education (EDU 111) 96
Introduction to Food Service (QFP 510) 112
Introduction to Food Service Administration & Medical Care Organizations (FHD 114) 101
Introduction to Human Service (HSR 111) 104
Introduction to Mass Communication (MCM 111) 106
Introduction to Mathematics I (MTH 101) 106
Introduction to Mathematics II (MTH 102) 106
Introduction to Metallurgy (PHS 106) 110
Introduction to Microcomputers (CSC 102) 91
Introduction to Microprocessors (ENT 246) 98
Introduction to Philosophical Analysis (PHL 111) 108
Introduction to Programmable Logic Control (ELT 245) 98
Introduction to Radio Station Operation (BRC 126) 88
Introduction to Refrigeration (ACR 511) 84
Introduction to Sociology (SOC 111) 115
Introduction to Solid State Devices (ENT 116) 98
Introductory Foods (FHD 111) 100
Introductory Newspaper Production (JOU 122) 105
Introductory Physics (PHS 112) 110
Introductory Surveying (CET 113) 91

Jogging/Physical Fitness (PED 147) 109

Landscape Construction (NMG 245) 108
Landscape Design (NMG 249) 108
Landscape Maintenance (NMG 248) 108
Layout & Design (GCO 511) 103
Layout & Design (GCO 515) 103
Lettering and Layout (ART 232) 83
Library Skills (RDG 103) 95
Lifesaving (PED 165) 109
Linear Algebra (MTH 249) 107
Literature of The American Indian (ENL 250) 99
Lumber Drying (WPT 123) 116
Lumber & Log Grading (WPT 121) 116

Machine Drafting (IND 715) 104
Machine Language Programming (MCS 202) 106
Machine Transcription and Office Procedures (WDP 231) 116
Machining I (MTT 511) 105
Machining II (MTT 512) 105
Management and Administration in Human Services (HSR 240) 104
Management and Production Techniques (QFP 520) 112
Managerial Accounting (ACC 230) 82
Manufacturing Processes (EDT 108) 95
Marketing (MKT 240) 113
Marriage & The Family (SOC 231) 115
Mass Media Photography (JOU 114) 105
Masters of Horror Horror in Literature and Mass Media (ENL 251) 99
Material and Processes (APC 515) 86
Materials of Construction (CET 111) 90
Matrix Algebra (MTH 204) 107

Mechanical Drawing (EDT 101) - 95
Mechanics (PHS 202) - 110
Mechanisms (EDT 122) - 96
Media and Law (MCM 122) - 106
Media and Techniques (ART 241) - 83
Media Management and Community Responsibility (MCM 242) - 106
Medical - Surgical Nursing - Elementary (NUR 723) - 111
Medical - Surgical Nursing - Intermediate (NUR 735) - 111
Medical Terminology I (MTR 101) - 107
Medical Terminology II (MTR 102) - 107
Menu Planning & Cost Control (FHD 125) - 101
Metal Work (ABC 714) - 85
Metal Work and Filling (ABC 833) - 85
Microbiology (BIO 201) - 88
Milking Management (DHM 722) - 93
Modern Physics (PHS 236) - 110
Motor Maintenance & Repair (ELC 715) - 96

News Writing (JOU 111) - 105
Newspaper Management & Production (JOU 233) - 105
Nursery Production I (NMG 121) - 107
Nursery Production II (NMG 232) - 107
Nursing Relationships (NUR 711) - 111
Nutrition (FHD 112) - 100

Office Internship (SEC 245) - 114
Operation, Repair and Maintenance (OPE 721) - 108
Oral Anatomy & Histology (DHG 115) - 93
Organic Chemistry I (CHM 203) - 90
Organic Chemistry II (CHM 204) - 90
Origin, Distribution & Behavior of Soils (CET 232) - 91

Painting (ABC 834) - 85
Painting and Estimating (ABC 844) - 85
Panel Alignment (ABC 724) - 85
Parental and Child Health (NUR 724) - 111
Periodontics I (DHG 123) - 94
Periodontics II (DHG 236) - 94
Personal and Community Health (PED 201) - 110
Personal and Job Orientation (CNC 844) - 90
Personnel Management, Work Simplification (FHD 235) - 101
Pharmacology (DHG 245) - 94
Philosophy, Sports, Games, Physical Exertion (PHL 250) - 108
Photogrammetry (CET 244) - 91
Photogrammetry and Forest Surveying I (FOR 121) - 102
Physical Geography (GEO 101) - 102
Physical Geology (GEL 105) - 102
Physics - Electricity and Magnetism (PHS 102) - 110
Physics - Heat and Light (PHS 101) - 110
Physics - Mechanics (PHS 100) - 110
Physics - Survey (PHS 500) - 110
Plane Surveying (CET 121) - 91
Plant Insects and Diseases (OHT 239) - 100, 108
Plant Propagation (OHT 234) - 100, 108
Platemaking, Substrates and Finishing (GCO 631) - 103
Plumbing Systems and Blueprints (PLH 721) - 111
Power Train and Accessory Service (AMT 630) - 86
Power Transmission (EDT 121) - 95
Practical Construction Experience (CNC 842) - 90
Practicum (NUR 736) - 111
Press Operations (GCO 632) - 103
Principles of Advertising (ADV 101) - 83
Principles of Business (MGT 110) - 88
Principles of Chassis Systems (AMT 520) - 85
Principles of Economics (ECO 201) - 96
Principles of Engine Systems I (AMT 510) - 85
Principles of Engine Systems II (AMT 511) - 85
Principles of Power Train and Accessories (AMT 521) - 85
Principles of Surgical Technology I (SRT 110) - 115
Principles of Surgical Technology II (SRT 120) - 115
Printing Estimating Practices (GCO 635) - 103
Printing Processes (GCO 645) - 103
Process Camera (GCO 521) - 103
Process Camera (GCO 525) - 103
Production Management (WPT 243) - 116
Professional Administration and Contract Documents (ARC 244) - 85
Programmable Control (ELC 847) - 97
Programming in BASIC (CSC 232) - 92
Programming in Pascal (CSC 112) - 91
Programming in RPG (CSC 231) - 92
Propellers (APC 525) - 86
Public Relations (MCM 243) - 106
Publication Management (JOU 244) - 105
Purchasing, Storage and Sanitation (FHD 115) - 101

Quality Control (WPT 233) - 116
Quantity Food Preparation (FHD 121) - 101

Racquetball (PED 166) - 109
Radiation Physics (PHS 122) - 110
Radio Station Operation and Management (BRC 236) - 88
Radiologic Technology I (RAD 110) - 112
Radiologic Technology II (RAD 120) - 112
Radiologic Technology III (RAD 230) - 112
Radiologic Technology IV (RAD 240) - 112
Reading Improvement (RDG 010) - 94
Real Estate Appraisal (RES 114) - 113
Real Estate Financing (RES 116) - 113
Real Estate Fundamentals (RES 112) - 113
Real Estate Law (RES 113) - 113
Real Estate Management (RES 117) - 113
Real Estate Math (RES 119) - 113
Real Estate Practice (RES 115) - 113
Real Estate Principles (RES 212) - 113
Real Estate Taxes (RES 120) - 113
Reciprocating Engines and Engine Inspection (APC 526) - 86
Red Cross First Aid (PED 202) - 110
Replacement Stock Management (DHM 725) - 93
Reporting Public Affairs (JOU 121) - 105
Residential Blueprints (ELC 726) - 96
Retail Management (MKT 247) - 113
Retail Principles (MKT 233) - 113
Roller Skating (PED 167) - 110
Roof-Framing Theory (BCT 231) - 89
Route Surveying (CET 231) - 91

Salads, Soups, and Sandwich Preparation (QFP 511) - 112
Sales (MKT 243) - 113
Sawmilling I (WPT 122) - 116
Sawmilling II (WPT 232) - 116
Scientific Principles Related to Nursing (NUR 712) - 111
Secretarial Procedures (SEC 129) - 114
Secretarial Workshop (SEC 244) - 114
Seminar in Architectural History (ARC 237) - 85
Service & Operation I (SOE 713) - 114
Service & Operation II (SOE 714) - 114
Service & Operation III (SOE 725) - 114
Service & Operation IV (SOE 726) - 114
Service & Operation V (SOE 837) - 114
Service & Operation VI (SOE 838) - 114
Service & Operation VII (SOE 847) - 115
Service & Operation VIII (SOE 848) - 115
Sheet Metal & Piping (IND 725) - 104
Shop Operation and Customer Relations (OPE 722) - 108
Short Order Preparation (QFP 541) - 112
Shorthand I (SEC 114) - 114
Shorthand II (SEC 124) - 114
Shorthand Workshop (SEC 234) - 114
Silviculture (FOR 236) - 102
Small Business Management (MGT 247) - 89
Small Engine Fundamentals (OPE 710) - 108
Soccer/Volleyball/Basketball (PED 121) - 109
Social Psychology (PSY 241) - 112
Softball/Volleyball/Basketball (PED 122) - 109
Soils & Soil Fertility (DHM 711) - 93
Soils, Fertilizer and Agricultural Chemicals (AGB 112) - 83
Solar Heat/Energy Conservation (ACR 242) - 84
Special Studies in Biology (BIO 290) - 88
Special Studies in Economics (ECO 290) - 96
Special Studies in English (ENL 290) - 100
Special Studies in Geology (GEL 290) - 102
Special Studies in Government (GOV 290) - 103
Special Studies in History (HIS 290) - 104
Special Studies in Psychology (PSY 290) - 112
Special Studies in Sociology (SOC 290) - 115
Special Topics in Agribusiness (AGB 237) - 83
Special Topics in Chemistry (CHM 290) - 90
Special Topics in Mathematics (MTH 290) - 107
Specialty & Related Trades (CNC 841) - 90
Starches and Entree Production (QFP 531) - 112
State & Local Government (GOV 241) - 103
Statics (ARC 111) - 84
Statics (CET 233) - 91
Statics (EIT 201) - 98
Statistics with Computer Methods (MTH 203) - 107
Steam Heat & Pipefitting (PLH 841) - 111
Strength of Materials (CET 243) - 91
Strength of Materials I (EIT 202) - 98
Strength of Materials II (EIT 205) - 99
Structural Drafting (IND 835) - 104
Structures - Concrete (ARC 247) - 85
Structures - Steel (ARC 238) - 85
Structures - Wood (ARC 121) - 84
Summer Internship (RAD 200) - 112
Supervision & Human Relations (MGT 248) - 89
Surveying, Layout & Blueprint Reading (CNC 711) - 89
Systems Analysis & Design Methods (CSC 235) - 92

Technical Mathematics I (MTH 710) - 107
Technical Mathematics II (MTH 500) - 107
Technical Writing (ENL 201) - 99
Techniques of Food Production (QFP 530) - 112
Tennis/Bowling (PED 106) - 109
Theory and Operation of Air Conditioning & Heating Systems (ACR 231) - 84
Theory of Programming I (MCS 111) - 106
Theory of Programming II (MCS 121) - 106
Thermodynamics (EIT 208) - 99
Timber Harvesting (FOR 234) - 102
Tool Drafting (TDT 231) - 115
Tooling Technology I (MTT 631) - 105
Tooling Technology II (MTT 632) - 105
Tools, Equipment and Collision Repairs (ABC 843) - 85
Topographic Drawing and Cartography (CET 122) - 91
Truck Tractor Power Train (DMC 543) - 95
Truck Tractor Chassis (DMC 544) - 95
Turbine Engines (APC 518) - 86

Two-Cycle Diesel Engines (DMC 524) - 95
Typewriting (SEC 509) - 114
Typewriting I (SEC 111) - 114
Typewriting II (SEC 121) - 114
Typewriting III (SEC 231) - 114
Typographic Composition (GCO 512) - 103
Typographic Composition (GCO 516) - 103

United States Survey I (HIS 231) - 103
United States Survey II (HIS 241) - 103
Urban Sociology (SOC 241) - 115

Value Clarification & Decision Making (CHD 100) - 94

Weight and Balance/Physics (APC 517) - 86
Weight Training/Golf (PED 144) - 109
Weight Training/Volleyball (PED 143) - 109
Weight Training/Volleyball/Softball (PED 125) - 109
Welding (Advanced) (WEL 842) - 116
Western Civilization I (HIS 111) - 103
Western Civilization II (HIS 121) - 103
Wheel Alignment and Advanced Chassis Service (AMT 643) - 86
Wood Industry Co-op/Internship (WPT 231) - 116
Wood Properties & Utilization (WPT 111) - 116
Woodworking For Carpenters (BCT 111) - 89
Woody Plants I (OHT 115) - 100, 108
Woody Plants II (NMG 126) - 107
Woody Plants III (NMG 237) - 108
Word Processing I (WDP 121) - 116
Word Processing II (WDP 232) - 116
Word Processing III (WDP 241) - 116
Word Processing Internship (WDP 242) - 116
Working Drawings - Commercial (ARC 125) - 84
Working Drawings - Residential (ARC 115) - 84
World Literature (ENL 231) - 99

Yoga (PED 168) - 110

INDEX

Academic Advisors - 117
Academic Information - 120
Academic Overload - 120
Academic Probation - 128
Academic Progress For Students Receiving Financial Aid - 12
Acceptance and Admission Preference - 4
Accounting Courses (ACC) - 82
Accounting Program (BA) - 19
Act 101 (COPing) - 129
Admission - 3
Admission of International Students - 6
Admission Policy - 4
Admission Preference, Acceptance and - 4
Admission Procedure - 4
Adding a Course - 121
Advanced Placement Credit - 123
Advertising Art Courses (ART) - 83
Advertising Art Program (AR) - 20
Advertising Courses (ADV) - 83
Advisors - 117
Advisory Committees - 134
Agribusiness Courses (AGB) - 83
Agribusiness Program (AG) - 21
Air Conditioning/Refrigeration Courses (ACR) - 84
Air Conditioning/Refrigeration Program (RA) - 22
Air Conditioning/Refrigeration Program (RC) - 23
Application and Application Fee - 4
Application Fee - 4, 9
Architectural Technology Courses (ARC) - 84
Architectural Technology Program (AT) - 24
Army Reserve Officers Training Corps (ROTC) - 118
Associate Degrees - 15
  Associate of Applied Arts (AAA) - 15
  Associate of Applied Science (AAS) - 15
  Associate of Arts (AA) - 16
Athletics - 118
Attendance Policy - 128
Auditing a Course - 121
Auto Body Repair Courses (ABC) - 85
Auto Body Repair Program (AB) - 25
Automotive Mechanics Courses (AMT) - 85
Automotive Mechanics Program (AM) - 26
Automotive Technology Courses (AMT) - 85
Automotive Technology Program (AU) - 27
Aviation Center - 9
Aviation Courses (APC) - 86
Aviation Maintenance Technician Program (AC) - 28
Aviation Technology Program (AD) - 29

Biology Courses (BIO) - 87
Board of Trustees - 2
Books and Supplies - 10
Broadcasting Courses (BRC) - 88
Broadcasting Program (BR) - 30
Business Administration Emphasis - 76
Business and Computer Technologies Division (program list) - 17
Business Management Courses (MGT) - 88
Business Management Program (BM) - 31

Calendar - 148
Campus and Facilities - 9
Campus Life - 118
Career Development - 117
Carpentry and Building Construction Technology Courses (BCT) - 89
Carpentry and Building Construction Technology Program (CB) - 32
Carpentry Courses (BCT & CNC) - 89
Center for Lifelong Education - 130
Center for Lifelong Education (program list) - 18
Certificate in Special Field of Study - 16
Change of Course - 120
Change of Program - 7, 121
Chemistry Courses (CHM) - 90
Civil Engineering Technology Courses (CET) - 90
Civil Engineering Technology Program (CT) - 33
Classification of Students - 120
Clerical Studies Courses (CLS) - 113
Clerical Studies Program (BT) - 34
Clubs - 118
College Directory - 139
College and University Transfer Programs - 75
College and University Transfer Programs (program list) - 18
College Colors and Nickname - 119
College Credit Earned Before High School Graduation - 7
College Level Examination Program (CLEP) - 8
College Opportunity Programming (COPing) - 129
College Termination - 127
College Transfer - 117
College Withdrawal - 127
Commencement Awards - 132
Communications Emphasis - 77
Computer Information Systems Courses (CSC) - 91
Computer Information Systems Program (CS) - 34
Computer Operator Courses (COP) - 92
Computer Operator Program (CO) - 35
Construction Carpentry Courses (CNC) - 89
Construction Carpentry Program (CC) - 36
Construction Technology Division (program list) - 17
Cooperative Education - 124
Cooperative Education Courses (CED) - 93
Cooperative Education (program list) - 18
COPing - 129
Counseling, Career Development and Placement - 117
Course Descriptions - 82
Credit by Exam - 123
Credit for Work/Life Experience - 124
Credit Load - 120
Cross Registration (Lycoming) - 125
Cumulative Grade Point Average - 122
Curriculum Guides - 76

Dairy Herd Management Courses (DHM) - 93
Dairy Herd Management Program (DY) - 37
Danville State Farm Laboratory - 9
Dean's Honor List - 127
Deferred Payment - 10
Degrees After Dark - 14
Degrees And Programs - 14
Dental Hygiene Courses (DHG) - 93
Dental Hygiene Program (DH) - 38
Developmental Studies - 129
Developmental Studies (program list) - 18
Developmental Studies Courses (CHD, ENL, MTH, RDG) - 94
Diesel Mechanics Courses (DMC) - 95
Diesel Mechanics Program (DM) - 39
Diesel Technology Program (DD) - 40
Dietetic Technician Program (DT) - 41
Divisions and Programs (listing) - 17
Drafting - Engineering Courses (EDT) - 95
Dropping a Course - 120

Early Admission - 4
Earth Science Center - 9
Economics Courses (ECO) - 96
Education Courses (EDU) - 96
Education Emphasis - 77
Educational Services - 117
Electric Courses (ELC & ELT) - 96
Electrical Occupations Courses (ELC) - 97
Electrical Occupations Program (EO) - 42
Electrical Technology Courses (ELT) - 96
Electrical Technology Program (EL) - 43
Electronics Courses (ENT) - 98
Electronics Technology Program (ET) - 44
Employment - 12
Engineer in Training Courses (EIT) - 98
Engineer in Training Exam Preparation (EIT) - 80
Engineering Drafting Courses (EDT) - 95
Engineering Drafting Technology Program (ED) - 45
English Courses (ENL) - 99
Environmental Science Courses (ESC) - 100
Exam Preparation - 80
  Engineer in Training - 80
  Real Estate - 80

Facilities - 9
Faculty - 140
Final Examinations - 129
Financial Aid - 12
Floriculture Courses (FLR) - 100
Floriculture Program (FL) - 46

Food and Hospitality Courses (FHD) - 100
Food and Hospitality Management Program (FH) - 47
Forest Technology Courses (FOR) - 101
Forest Technology Program (FR) - 48
Full-Time Students - 9, 120

General Equivalency Diploma (GED) - 4
General Studies Program - 75
Geography Courses (GEO) - 102
Geology Courses (GEL) - 102
German Courses (GER) - 102
Good Standing for Students Receiving Financial Aid - 12
Government Courses (GOV) - 103
Grade Reports - 122
Grading System - 121
Graduation Fees - 11, 126
Graduation Requirements - 125
Graphic Arts Courses (GCO) - 103
Graphic Arts Program (GA) - 49

Health Records - 5
Health Sciences Division (program list) - 17
Health Services - 8
High School Graduation - 4
History Courses (HIS) - 103
Honor List - 127
Housing - 8
Human Service Courses (HSR) - 104
Human Service Program (HS) - 50

Index of Courses - 143
Individual Studies Program - 79
Industrial Drafting Courses (IND) - 104
Industrial Drafting Program (ID) - 51
Industrial Technology Division (program list) - 17
Integrated Studies Division (program list) - 17
International Students, Admission of - 6

Journalism Courses (JOU) - 105
Journalism Program (JO) - 52

Lycoming Cross Registration - 125

Machine Tool Technology and Machinist General Courses (MTT) - 105
Machine Tool Technology Program (TT) - 53
Machinist General and Machine Tool Technology Courses (MTT) - 105
Machinist General Program (MG) - 54
Management, Business Courses (MGT) - 88
Mass Communications Courses (MCM) - 106
Math-Science Emphasis - 78
Mathematical Computer Science Courses (MCS) - 106
Mathematical Computer Science Program (MC) - 55
Mathematics Courses (MTH) - 106
Medical Terminology Courses (MTR) - 107

Natural Resources Management Division (program list) - 18
Non-Degree Students - 8, 120
Non-Traditional Credit - 123
North Campus - 9
Nursery Management Courses (NMG) - 107
Nursery Management Program (NM) - 56

Orientation - 117
Ornamental Horticulture Courses (FLR, NMG, OHT) - 100, 107
Outdoor Power Equipment Courses (OPE) 108
Outdoor Power Equipment Program (SM) - 57
Overload Credits - 120

Part-Time Students - 120
Petition to Graduate - 126
Philosophy Courses (PHL) - 108
Physical Education Courses (PED) - 109
Physics Courses (PHS) - 110
Placement - 117
Placement Examinations - 5
Plumbing and Heating Courses (PLH) - 110
Plumbing and Heating Program (PL) - 58
Practical Nursing Courses (NUR) - 111
Practical Nursing Program (NU) - 59
Pre-Law Emphasis - 78
Pre-Medical Emphasis - 78
Pre-Theological Emphasis - 79
President's Message - 1
Printing Program (GP) - 60
Probation, Academic - 128
Psychology Courses (PSY) - 111
Publications - 119

Quantity Food Production and Service Courses (QFP) - 112
Quantity Food Production and Service Program (QF) - 61

Radiologic Technology Courses (RAD) - 112
Radiologic Technology Program (RT) - 62
Real Estate Courses (RES) - 113
Real Estate Exam Preparation - 80
Reenrollment - 6
Refunds, Withdrawals and - 11, 127
Registration - 120
Repeating a "D" or "F" Course - 121
Respiratory Therapy Program (HC) - 63
Retail Management Courses (MKT) - 113
Retail Management Program (RM) - 64
Retention Data, Student - 8
ROTC - 118

Satisfactory Progress - 12, 120
Scheduling/Registration - 120
Secondary Vocational Program - 131
Secondary Vocational Programs (program list) - 18
Secretarial Science & Clerical Studies Courses (CLS & SEC) - 113
Secretarial Science Courses (SEC) - 113
Secretarial Science Program - Executive (BS) - 65
Secretarial Science Program - Legal (BS) - 65
Secretarial Science Program - Medical (BS) - 66
Service and Operation of Heavy Construction Equipment Courses (SOE) - 114
Service and Operation of Heavy Construction Equipment Program (SO) - 67
Service Credit - 8
Social/Cultural/Recreational Activities - 119
Sociology Courses (SOC) - 115
Spanish Courses (SPA) - 115
Special Student - 120
Special Topics Courses - 82
Sponsor School Districts - Inside front cover
Staff - 139
Student Conduct - 128
Student Government - 119
Student Retention Data - 8
Student Termination - 127
Student Withdrawal - 127
Surgical Technology Courses (SRT) 115
Surgical Technology Program (ST) 68

Technical Illustration Program (TI) - 69
Technology Studies Program (TS) - 70
Terminations, Withdrawals, Refunds - 127
Tool Design Technology Courses (TDT) - 115
Tool Design Technology Program (TD) - 71
Tools 11
Transcripts 11

Transfer Credit - 7
Transfer from Another Institution - 7
Transfer of Credits to Four-Year Institutions - 8
Transfer Students - 7
Transportation Technology Division (program list) - 18
Tuition and Fees - 9, 10
Tuition Deposit - 5, 9

United States Armed Forces Institute Credit (USAFI) - 8

Veterans Information/Benefits - 13

Weekend College - 14
Welding Courses (WEL) - 115
Welding Program (WE) - 72
Withdrawal From A Course - 127
Withdrawals From College - 127
Withdrawals and Refunds - 11, 127
Withholding Grades - 123
Wood Products Technology Courses (WPT) - 116
Wood Products Technology Program (WD) - 73
Word Processing Courses (WDP) - 116
Word Processing Program (WP) - 74
Work and/or Life Experience Credit - 124

COLLEGE CALENDAR 1984-85

FALL SEMESTER 1984

August

20-24		Preparation: Fall Semester/New Student Orientation/Faculty Preparation
Mon.	20	Convocation/Advanced Placement Testing
Tue.	21	Late Registration
Mon.	27	Classes Begin
Fri.	31	Last Day to Request Advanced Placement Last Day to Add Classes Last Day to Drop Classes with 80% Refund

September

Mon.	3	Labor Day Vacation
Tue.	4	Classes Resume
Fri.	7	Last Day to Drop Classes with 70% Refund
Fri.	14	Last Day to Drop Classes without a Grade Last Day to Drop Classes with 60% Refund

October

Thu.	4	Last Day to File "Petition to Graduate" For December Graduates
Fri.	5	Fall Vacation — No Classes
Mon.	8	Classes Resume

November

Fri.	2	Last Day to Drop Classes with a "W" Grade
Thu.	22	Thanksgiving Day Vacation
Fri.	23	Thanksgiving Vacation
Mon.	26	Thanksgiving Vacation
Tue.	27	Classes Resume

December

Mon.	17	Last Day of Classes Last Day to Drop Classes

For Information On Administrative Deadlines, Check The Appropriate Policy In This Catalog.

SPRING SEMESTER 1985

January

2-7		Preparation: Spring Semester Faculty Preparation
Wed.	2	Orientation/Advanced Placement Testing
Thu.	4	Late Registration
Tue.	8	Classes Begin
Fri.	11	Last Day to Request Advanced Placement Last Day to Add Classes Last Day to Drop Classes with 80% Refund
Fri.	18	Last Day to Drop Classes with 70% Refund
Fri.	25	Last Day to Drop Classes without a Grade Last Day to Drop Classes with 60% Refund

February

Fri.	15	Last Day to File "Petition to Graduate" For May Graduates
Wed.	20	Staff Development—No Classes
Thu.	21	Winter Vacation or Snow Make-Up
Fri.	22	Winter Vacation or Snow Make-Up
Mon.	25	Classes Resume

March

Fri.	15	Last Day to Drop Classes with a "W" Grade
Sun.	24	Open House

April

Mon.	1	Staff Development—No Classes
Tue.	2	Staff Development—No Classes
Wed.	3	Staff Development—No Classes
Thu.	4	Spring Vacation or Snow Make-Up
Fri.	5	Spring Vacation or Snow Make-Up
Mon.	8	Classes Resume

May

Mon.	6	Last Day of Classes Last Day to Drop Classes
Sat.	11	Commencement

ABOUT THE COLLEGE

College Philosophy

We believe in the dignity and worth of all individuals. We believe learning is a lifelong process and that all individuals should have opportunities for lifelong education. We believe education should help individuals develop, to their maximum capacity, technical excellence, occupational proficiency, and academic ability. We believe education should also provide for personal enrichment. To prosper in a complex and changing society, we believe individuals must learn to think independently, value logical and tested conclusions, develop problem solving abilities, and function effectively with other people. We believe that competent performance contributes significantly to individual health and happiness and benefits the organizations and communities in which individuals work and live. We believe the College is an integral part of the community it serves and must respond to identified needs and interests. In delivering education services, we believe there is no substitute for the pursuit of excellence.

College Mission

The Williamsport Area Community College is a public two-year comprehensive community college with strong heritage and continuing emphasis on vocational-technical skills and knowledge. The College serves primarily the state-designated, 10-county Northcentral Pennsylvania area. Because of the extensive commitment to hands-on occupational programming, the College also serves as a regional, national, and international resource.

The College seeks to implement its philosophy by providing:

- quality postsecondary occupational and transfer programs and services for all those who can benefit, including those who have previously discontinued their formal education;
- quality vocational-technical programs and services for area secondary students;
- accessible full and part-time educational opportunities and services which address a wide spectrum of individual needs and abilities through varied formats, schedules, geographic locations, and short-term courses;
- educational programming related to economic and employment realities;
- additional and enriched career options through cooperation with industry, business, professions, government, and other educational institutions;
- comprehensive programs which integrate communications, math, science, humanities, interpersonal skills, reasoning, and physical health and safety;
- opportunity to develop skills needed to enter and succeed in programs;
- continuing opportunities to extend and upgrade skills, knowledge, and interests;
- support for informed decisions using knowledge of abilities, interests, and values realized through testing, evaluation and counseling, as well as instruction;
- opportunities to develop personal, social, and cultural dimensions.

The College affirms that excellence in instruction at reasonable student cost is its highest priority. The College is accountable for its mission within the limitations of its physical and financial resources.

College Goals

GOAL AREA: Vocational Technical Education

To offer programming which meets the vocational technical education needs of students, service area residents, and employers in traditional occupations and emerging career fields.

(continued on other side)

College Offices are open throughout the fall, winter and spring, except on official College holidays, from 8:00 a.m. to 4:30 p.m. Monday through Friday. During the summer, College Offices are open 7:30 a.m. until 4 p.m., Monday through Thursday and until 1 p.m. on Fridays.

Please send me an Application for Admission form to
THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name _____

Address _____ Tel. No. _____

City _____ State _____ Zip Code _____

High School _____ Year of Graduation _____

College(s) _____

I am interested in the _____ Curriculum

I would like further information about _____

Please send me an Application for Admission form to
THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name _____

Address _____ Tel. No. _____

City _____ State _____ Zip Code _____

High School _____ Year of Graduation _____

College(s) _____

I am interested in the _____ Curriculum

I would like further information about _____

GOAL AREA: General Education

To ensure that students acquire an introductory knowledge of communications and mathematics, and appropriate social sciences, natural sciences and humanities in order to facilitate their acquisition of the skills and knowledge that will enable them to live effectively in society and/or to prepare them for further study.

GOAL AREA: Developmental Education

To identify and assess the basic skill levels of all students and provide program opportunities to ensure that students develop appropriate reading, writing, and mathematics competencies to succeed in college-level studies.

GOAL AREA: Lifelong Education

To instill in students and service area residents an appreciation for learning as a lifelong activity, and to provide programming which meets their vocational, avocational, social, and cultural interests.

GOAL AREA: Counseling and Advising

To provide counseling services which permit the student to enjoy a smooth progression through the recruitment, admissions, career identification, and job placement processes and which employ effective academic advising and provide the opportunity for professional assistance in resolving personal difficulties.

GOAL AREA: Effective Management

To provide appropriate opportunities for all College constituencies to participate actively in institutional decision-making processes, in the accomplishment of institutional objectives and the achievement of College goals.

GOAL AREA: Accessibility and Student Services

To offer programs and services at affordable costs to students and at times and locations which optimize educational accessibility, and which meet the special needs of the College's student population.

GOAL AREA: Staff Development

To contribute to the quality of instruction and institutional operations by providing opportunities for College staff to develop professionally and to advance in their fields through the use of a staff development program based upon the needs of individual staff members.

GOAL AREA: Intellectual Orientation

To provide programming which emphasizes the process skills of inquiry, research, problem definition, problem solution, and which encourages students to embrace new ideas and ways of thinking.

GOAL AREA: Student Personal Development

To develop an atmosphere in which students are encouraged to identify personal goals and to develop the means for achieving them through fostering in the student a sense of self-worth, self-confidence, and self-direction.

GOAL AREA: College Community

To foster an atmosphere of the College as a community where lines of communication are open and candid and where a strong commitment to personal development and to the College's goals is maintained.

GOAL AREA: Instruction

To provide a program of instruction which maintains high standards of academic performance, which is innovative in the implementation of alternative instructional delivery systems, and which actively seeks to provide the most modern equipment, facilities, and instructional support services for the educational process.

GOAL AREA: Resources

To develop the fiscal, human, and physical resources needed to support the College's programs and services.

GOAL AREA: Physical Plant

To develop and maintain physical facilities that provide an environment that is safe, healthful, and conducive to learning.

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 356 WILLIAMSPORT, PA

POSTAGE WILL BE PAID BY ADDRESSEE

Admissions Office

The Williamsport Area Community College

1005 West Third Street

Williamsport, Pennsylvania 17701-9981

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 356 WILLIAMSPORT, PA

POSTAGE WILL BE PAID BY ADDRESSEE

Admissions Office

The Williamsport Area Community College

1005 West Third Street

Williamsport, Pennsylvania 17701-9981

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

Campus Map

ATC — Automotive Trades Center
- Auto Body Repair
- Automotive Mechanics
- Automotive Technology
- Transportation Technology Office

DC — Diesel Center
- Diesel Mechanics
- Diesel Technology

TTC — Technical Trades Center
- Secondary Vocational Programs Office
- **TT1**
- Secondary Automotive
- **TT2 & TT3**
- Electrical Occupations
- Electrical Technology
- **TT4**
- Machine Tool Technology
- Machinist General

MTC — Metal Trades Center
- Welding
- Industrial Technology Office

GYM — Gymnasium
- Physical Education & Health
- Intramural Athletics & College Activities
- Student Health Services

LRC — Learning Resources Center*
- Architectural Technology
- Bookstore
- Cooperative Education, Postsecondary
- Counseling, Career Development & Placement
- Developmental Studies & Act 101
- Library
- Mathematics/English Laboratories
- Media Center
- Reading Laboratories

BTC — Building Trades Center
- Air Conditioning/Refrigeration
- Carpentry & Building Construction Technology
- Construction Technology
- Plumbing and Heating
- Construction Technology Office

ADM — Administration
- Duplicating & Mail Services
- Graphic Arts
- Printing

LEC — Lifelong Education Center
- Broadcasting
- Dietetic Technician
- Engineering Drafting Technology
- Food & Hospitality Management
- Industrial Drafting
- Quantity Foods
- Science Laboratories
- Tool Design Technology
- Student Government Office
- Susquehanna Room (Food Service Area)
- WWAS - Radio
- President
- Associate Academic Dean
- Associate Dean, Educational Services
- College Information & Community Relations
- College Foundation
- Dean, Academic Affairs
- Dean, Administration
- Dean, Development
- Dean, Educational Research, Planning & Evaluation
- Dean, Employee & Community Relations
- Executive Assistant for Internal Affairs
- Personnel

ACC — Academic Center*
- Accounting
- Advertising Art
- Business Management
- Clerical Studies
- Computer Information Systems
- Dental Hygiene
- Electronics Technology
- English
- Human Service
- Journalism
- Mathematical Computer Science
- Practical Nursing
- Radiologic Technology
- Retail Management
- Secretarial Science
- Surgical Technology
- Technical Illustration
- Word Processing
- Admissions
- Bursar
- Business & Computer Technologies Office
- Business & Financial Operations
- Career Options
- Center for Lifelong Education
- Computer Center
- Financial Aid
- Health Sciences Office
- Integrated Studies Office
- SPOTLIGHT
- Staff and Program Development
- Student Records
- Veterans' Information

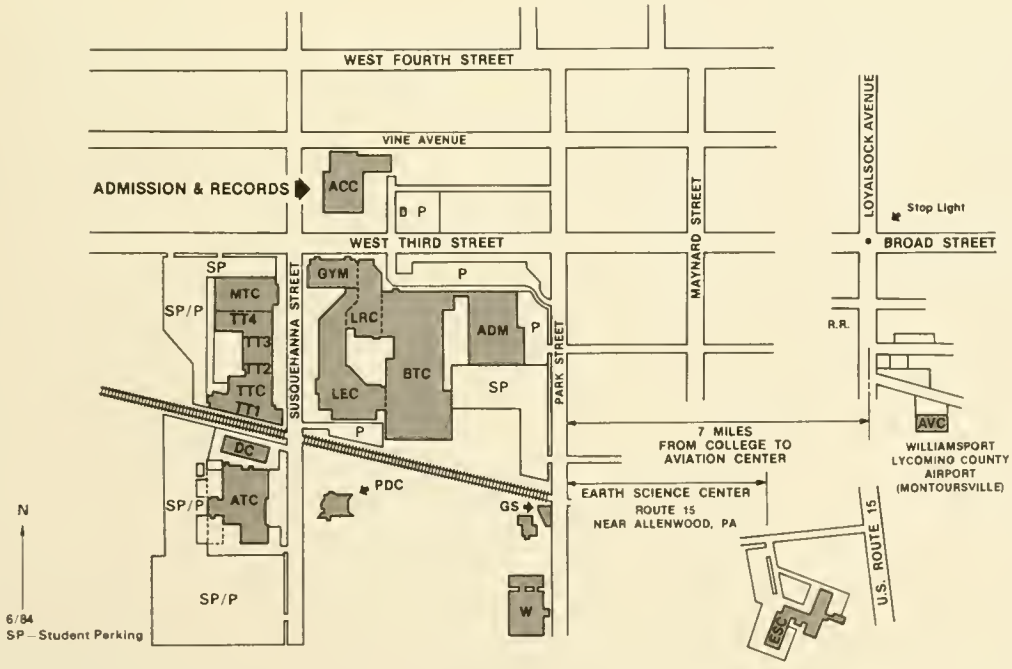
GS — General Services
- Dean, General Services
- Security

W — Warehouse

AVC — Aviation Center
- Aviation Maintenance Technology
- Aviation Technology

ESC — Earth Science Center
- Agribusiness
- Floriculture
- Forest Technology
- Nursery Management
- Outdoor Power Equipment
- Service & Operation of Heavy Construction Equipment
- Wood Products Technology
- Natural Resources Management Office

*Elevators provide access to the upper floors of these buildings. Access to the second floor of the Gymnasium and the Lifelong Education Center is through the second floor of the Learning Resources Center.



THE WILLIAMSPORT AREA COMMUNITY COLLEGE

1005 West Third Street • Williamsport, Pennsylvania 17701-5799 • (717) 326-3761